

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 3, 51, 60, 63, 70, 123, 142, 145, 162, 233, 257, 258, 271, 281, 403, 501, 745 and 763

[FRL--]

Establishment of Electronic Reporting; Electronic Records

AGENCY: Environmental Protection Agency.

ACTION: Proposed rule.

SUMMARY: EPA is proposing to allow electronic reporting to EPA by permitting the use of electronic document receiving systems to receive electronic documents in satisfaction of certain document submission requirements in EPA's regulations. The proposal also sets forth the conditions under which EPA will allow an electronic record to satisfy federal environmental record-keeping requirements in EPA's regulations. In addition, under today's proposal, States and tribes will be able to seek EPA approval to accept electronic documents or allow the maintenance of electronic records to satisfy reporting and record-keeping requirements under authorized or delegated environmental programs that they administer. The proposal includes criteria against which a State's or tribe's electronic document receiving system will be evaluated before EPA can approve changes to the authorized program that allow electronic reporting. Similarly, the proposal includes criteria against which EPA will evaluate a State's or tribe's provisions for electronic record-keeping.

Under today's proposal, electronic document submission or electronic record-keeping will be totally voluntary; EPA will not require the submission of electronic documents or maintenance of electronic records in lieu of paper documents or records. EPA will only begin to accept direct submission of an electronic document once EPA has provided public notice that its electronic document receiving system is prepared to receive the document in electronic form. Similarly, EPA will only begin to allow electronic records to satisfy a specific EPA record-keeping requirement once EPA has provided public notice stating that electronic records will satisfy the identified requirement.

DATES: In order to be considered, comments must be received on or before **[insert date 90 days after Federal Register publication date]**. Comments provided electronically will be considered timely if they are submitted by 11:59 p.m. (Eastern time) **[insert date 90 days after Federal Register publication date]**.

ADDRESSES: Comments should be addressed to the United States Environmental Protection Agency, Enforcement and Compliance Docket and Information Center, (Mail Code 2201A), Attn: Docket Number EC-2000-007, 1200 Pennsylvania Avenue NW, Washington, DC, 20460. Commenters are also requested to submit an original and 3 copies of their written comments as well as

an original and 3 copies of any attachments, enclosures, or other documents referenced in the comments. Commenters who would like EPA to acknowledge receipt of their comments should include a self-addressed, stamped envelope. All comments must be postmarked or delivered by hand by [Insert date]. No facsimiles (faxes) will be accepted. Public comments and supporting materials are available for viewing in the Enforcement and Compliance Docket and Information Center, located at 1200 Pennsylvania Avenue, NW, (Ariel Rios Building), 2nd Floor, Room 2213, Washington, DC 20460. The documents are available for viewing from 9 a.m. to 4 p.m., Monday through Friday, excluding federal holidays. To review docket materials, it is recommended that the public make an appointment by calling (202) 564-2614 or (202) 564-2119. The public may copy a maximum of 266 pages from any regulatory document at no cost. Additional copies cost \$0.15 per page. The rule and some supporting materials are also available electronically on the Internet for public review, using a www browser type, at <http://www.epa.gov/>.

EPA will also accept comments electronically. Comments should be addressed to the following Internet address: docket.oeca@epa.gov. Electronic comments must be submitted as an ASCII, WordPerfect 5.1/6.1/8 format file and avoid the use of special characters or any form of encryption. Comments in electronic format should also be identified by the docket number EC-2000-007. Electronic comments will be transferred into a paper version for the official record. EPA will attempt to clarify electronic comments if there is an apparent error in transmission. Comments provided electronically will be considered timely if they are submitted electronically by 11:59 p.m. (Eastern time) [Insert Date].

FOR FURTHER INFORMATION CONTACT: For general information on this proposed rule, contact the docket above. For more detailed information on specific aspects of this rulemaking, contact David Schwarz (2823), Office of Environmental Information, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue NW, Washington, DC 20460, (202) 260-2710, schwarz.david@epa.gov, or Evi Huffer (2823), Office of Environmental Information, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue NW, Washington, DC, 20460, (202) 260-8791, huffer.evi@epa.gov.

SUPPLEMENTARY INFORMATION: Affected Entities. This rule will potentially affect State and local governments which have been authorized or which seek authorization to administer a federal environmental program under Title 40 of the Code of Federal Regulations. The rule will also potentially affect private parties subject to any requirements in Title 40 of the Code of Federal Regulations that a document be created, submitted, or retained. Affected Entities include:

Category	Examples of Affected Entities
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Local government	Publicly Owned Treatment Works, owners and operators of treatment works treating domestic sewage, local and regional air boards, local and regional waste management authorities, municipal and other drinking water authorities.
Private	Industry owners and operators, waste transporters, privately owned treatment works or other treatment works treating domestic sewage, privately owned water works, small businesses of various kinds, sponsors such as laboratories that submit or initiate/support studies, and testing facilities that both initiate and conducts studies.
State government	States or Tribes that manage any federal environmental programs authorized/approved by EPA under Title 40 of the Code of Federal Regulations.
Federal government	Federally owned treatment works and industrial dischargers; federal facilities subject to hazardous waste regulation.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. This table lists the types of entities that EPA is now aware can potentially be affected by this action. Other types of entities not listed in the table can also be affected. Note that while this proposal will affect entities involved with hazardous waste management, it does not apply to the Hazardous Waste Manifest, which EPA is addressing in a separate electronic reporting rule. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding “FOR FURTHER INFORMATION CONTACT” section.

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- 3. The CDX architecture.
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- B. Executive Order 13132
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- F. National Technology Transfer and Advancement Act
- G. Executive Order 13045

I. OVERVIEW

A. Why does the Agency want to allow electronic reporting and record-keeping?

More than ten years ago, EPA published a notice entitled: “Electronic Reporting at EPA: Policy on Electronic Reporting,” (FRL-3815-4) announcing the goal of making electronic reporting available under EPA regulatory programs. We gave as reasons for this goal our expectation that enabling the submission and storage of electronic documents in lieu of paper documents can:

2. reduce the cost for both sender and recipient,
3. improve data quality by automating quality control functions and eliminating rekeying, and
4. greatly improve the speed and ease with which the data can be accessed by all who needed to use it.

Electronic reporting and record-keeping have a strong mandate in federal policy and law. As stated in the March, 1996, *Reinventing Environmental Information Report*, electronic reporting supports the President’s overall regulatory re-invention goals of reducing the burden of compliance and streamlining regulatory reporting. In addition, the Government Paperwork Elimination Act (GPEA) of 1998, public law 105-277, requires that agencies be prepared to allow electronic reporting and record-keeping under their regulatory programs by October 21, 2003. Given the enormous strides in data transfer and management technologies since 1990 - particularly in connection with the Internet - replacing paper with electronic data transfer now promises increased productivity across almost all facets of business and government.

B. What will the proposed regulations do?

The proposed rule will remove existing regulatory obstacles to electronic reporting and record-keeping across a broad spectrum of EPA programs, and establish requirements to assure that electronic documents and electronic records are - for all purposes - as valid and authentic as their paper counterparts. These proposed requirements will apply to regulated entities that choose to submit electronic documents and/or keep electronic records, and under today’s proposal, the choice of using electronic rather than paper for future reports and records will remain purely voluntary. Today’s proposal will not amend compliance requirements under existing regulations and statutes and will not affect whether a document must be created, submitted, or retained under the existing provisions of Title 40 of the Code of Federal Regulations. Similarly, today’s proposal will not affect the period of required record-retention, whether the stored electronic document must be signed, who is entitled to receive copies of the record, the number of copies that must be maintained, or any other requirements imposed by the underlying EPA, State, tribal or local program regulations. Public access to environmental compliance information will not be adversely affected by today’s proposal. Electronic

reporting and record-keeping provisions in this proposal will provide for continued public access to electronic documents equivalent to that provided for paper records under existing law.

For purposes of this proposal, EPA is using the term “electronic reporting” in a sense that excludes submission of a report via magnetic media, for example via diskette, compact disk, or tape; we are also excluding transmission via hard copy facsimile or “fax”. Likewise, our use of the term “electronic document” throughout this Notice refers exclusively to documents that are transmitted via a telecommunications network, excluding hard copy facsimile. However, this proposal’s exclusion of magnetic media submissions in no way indicates EPA’s rejection of this technology as a valid approach to paperless reporting; we believe that in many cases magnetic media submission fulfills the goals of the Government Paperwork Elimination Act (GPEA). Many EPA programs have successfully used magnetic media submissions to implement their regulatory reporting, including Hazardous Waste, Toxic Release Inventory, and Pesticide Registration. EPA expects these magnetic media approaches to paperless reporting to continue, and nothing in today’s proposal should be understood to proscribe them.

For regulated entities that choose to submit electronic documents directly to EPA, today’s proposal will require that these documents be submitted to a centralized Agency-wide electronic document receiving system, called the ‘Central Data Exchange’ (CDX), or to alternative systems designated by the Administrator. Regulated entities that wish to submit electronic documents directly to EPA will satisfy the requirements in today’s proposal by successfully submitting their reports to the CDX. While we do not intend to codify any of the details of how CDX operates or how it is constructed, EPA does solicit comments on the characteristics of the CDX and the submission scenarios described in this preamble. In addition, the CDX design specifications will be included as a part of this rulemaking docket. For regulated entities that choose to keep records electronically, today’s proposal requires the adoption of best practices for electronic records management. Importantly, today’s proposal will not authorize the conversion of existing paper documents to an electronic format for record-retention purposes because no mechanism currently exists that can be relied upon in all cases to preserve the forensic data in an existing paper document when it is converted to an electronic form. However, today’s proposal does not prohibit such conversions at the Administrator’s discretion on a case-by-case basis.

Many facilities do not submit documents directly to EPA, but rather to States, tribes or local governments that are approved, authorized or delegated to administer a federal environmental program on EPA’s behalf or to administer a state environmental program in lieu of the federal regulatory program in that State. We will refer to these as “authorized State and tribal programs.” This proposal will allow for EPA approval of changes to authorized State and tribal programs to provide for electronic reporting, and EPA approval will be based largely on an assessment of the State’s or tribe’s “electronic document receiving system” that will be used to implement the electronic reporting provisions. For this purpose, today’s proposal includes detailed criteria that EPA will use to determine that an electronic document receiving system is acceptable. These criteria address such issues as

system security, the approach to electronic signature and certification, chain-of-custody and archiving, including provisions that address how a State, tribe or local government manages electronic records that are directly associated with its electronic document receiving system, as well as certain data transfers between this system and regulated entities. Beyond this, today's proposal does not address State, tribal or local government electronic record-keeping or data transfers carried out to administer their authorized programs. Today's proposal does not address any data transfers between EPA and States or tribes as a part of administrative arrangements to share data. Finally, it is worth noting that EPA can approve changes to authorized State or tribal programs that involve the use of CDX to receive data submissions from their regulated communities. CDX has been designed with the goal of fully satisfying the criteria that this proposal specifies for assessing State or tribal electronic document receiving systems; similarly, EPA will ensure that other systems the Administrator designates to receive electronic submissions will satisfy the criteria as well. In view of this, EPA is exploring opportunities to leverage CDX resources for use by States, tribes and local environmental agencies.

Similarly, many facilities maintain records to satisfy the requirements of authorized State and tribal programs. This proposal will also allow for EPA approval of changes to authorized State and tribal programs to provide for electronic record-keeping. EPA approval in this case will be based on a determination that the State's or tribe's program will require best practices for electronic records management, corresponding to EPA's provisions for electronic records maintained to satisfy EPA record-keeping requirements.

For both document submission and record-keeping, the point of the proposed requirements is primarily to ensure that the authenticity and integrity of these documents and records are preserved as they are created, submitted, and/or maintained electronically, so that they continue to provide strong evidence of what was intended by the individuals who created and/or signed and certified them. Among other things, today's proposal is intended to ensure that the federal laws regarding the falsification of information submitted to the government still apply to any and all electronic transactions, and that fraudulent electronic submissions or record-keeping can be prosecuted to the fullest extent of the law. In establishing clear requirements for electronic reporting systems and electronic records, this proposed rule will help to minimize fraud by assuring that the responsible individuals can be readily identified.

While today's proposal will remove regulatory obstacles to electronic reporting and record-keeping, EPA will make electronic submission available as an option for specific reports or other documents only as the systems become available to receive them. Similarly, EPA will make electronic record-keeping available as an option for specific record-keeping requirements only as programs become ready to adopt this change. In the case of electronic reporting, EPA plans to move aggressively toward implementation of CDX for high volume environmental reports submitted directly to EPA. EPA will publish announcements in the *Federal Register* as CDX and other systems become available for particular environmental reports and as programs become ready to make electronic record-keeping an option. These points are discussed in more detail in Section III.C and D of this

Preamble. To implement electronic reporting and record-keeping under authorized State and tribal programs, EPA also plans to work with interested States and tribes to approve the necessary program changes as quickly and expeditiously as possible.

II. BACKGROUND

A. What is EPA's current electronic reporting policy?

On September 4, 1996, EPA published a document entitled "Notice of Agency's General Policy for Accepting Filing of Environmental Reports via Electronic Data Interchange (EDI)" (61 FR 46684) (hereinafter referred to as 'the 1996 Policy'), where "EDI" generally refers to the transmission, in a standard syntax, of unambiguous information between computers of organizations that may be completely external to each other (61 FR at 46685). This notice announced our basic policy for accepting electronically submitted environmental reports, and its scope was intended to include any regulatory, compliance, or informational (voluntary) reporting to EPA via EDI.

In the context of EDI, the "syntax" of the computer-to-computer transmissions may be thought of as the structure or format of the transmitted data files. And, "format" here refers to such things as the ordering and labeling of the individual elements of data, the symbol used to separate elements, the way that related elements are grouped together, and so on. For example, for a file consisting of people's names, a simple format specification might be that (i) the elements occur in order: first-name, middle-name, last-name; (ii) the elements are labeled, respectively, "F", "M", and "L"; (iii) each group of first, middle and last names is separated by a semi-colon; and (iv) there is a comma between any two elements in a group.

For purposes of the 1996 policy, the standard transmission formats used by EPA were to be based on the EDI standards developed and maintained by the American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12. By linking our approach to the ANSI X12 standards, we hoped to take advantage of the robust ANSI-based EDI infrastructure already in place for commercial transactions, including a wide array of commercial off-the-shelf (COTS) software packages and communications network services, and a growing industry community of EDI experts available both to EPA and to the regulated community. At the time EPA was writing this policy, ANSI-based EDI was arguably the dominant mode of electronic commerce across almost all business sectors, from aerospace to wood products, at least in the United States. EDI was also widely used in the Federal Government, most notably at the Department of Defense, but also, increasingly, at other agencies, including the Social Security Administration, the General Services Administration, the Department of Transportation, the Health Care and Finance Administration, and the Department of Housing and Urban Development, and the Department of Health and Human Services.

However, as the 1996 policy made clear, no specific EPA reporting requirement can be satisfied via EDI until the Agency develops the corresponding program-specific implementation guidance (61 FR

46686). This guidance generally needs to do at least three things. First, it needs to address such procedural matters as the interactions with the communications network (for EDI purposes, usually stipulated as a controlled-access, ‘value-added network’ or ‘VAN’), schedule for submissions and acknowledgments, transaction records to be maintained, and so on. Second, it needs to stipulate the specific ANSI X12 standard transmission formats – referred to as “transaction sets” – to be used for the specified reports. This stipulation is essential, since ANSI provides hundreds of different transaction sets, each corresponding to a distinct type of commercial document, e.g. invoices, purchase orders, shipping notices, product specifications, reports of test results, and so on. Third, the guidance also needs to say how the stipulated transactions sets are to be interpreted. X12 transaction sets are generally designed to be somewhat generic – they typically leave a number of their components as ‘optional’, and use data-element specifications that are open to multiple interpretations. (For a more detailed explanation of EDI and these implementation guidance documents, see section V.B.4 of this preamble.)

Given a public notice that the applicable implementation guidance is ready, the September, 1996, policy allows facilities to submit required reports electronically using EDI once they enter into a Terms and Conditions Agreement (TCA) with the Agency (61 FR 46685). Where the report in question requires a responsible individual at a facility to certify to the truthfulness of the submitted data, the TCA must provide for the use of a Personal Identification Number (PIN) as a form of electronic signature. Under the policy, the individual entering into the TCA is required to use a PIN assigned by EPA for this purpose (61 FR 46685). Finally, under the TCA, the facility is required to adhere to security and audit requirements as described in the notice (61 FR 46687).

Finally, the 1996 policy also explained that the various programs may require additional security procedures on a program-by-program basis (61 FR 46684). Such procedures may be covered in the program-specific implementation guidance, or can be provided through rule-making.

B. How would today’s proposal change EPA’s current electronic reporting policy?

For practical purposes, the most important changes that today’s proposal makes to current policy is in our *technical approach* to electronic reporting. Generally, we propose to greatly broaden the options available for electronic submission of data. For example, while we will continue to support data transfer via standards-based EDI (as explained in section V.B.4 of this preamble), we will also provide options involving user-friendly ‘smart’ electronic forms to be filled out on-line, on the Internet, or downloaded for completion off-line at the user’s personal computer. In addition, we propose to support data transfers through the Internet, via email, or via on-line interactions with Web sites, in a variety of common application-based formats, such as those output by spreadsheet packages. In terms of electronic signature technology, while we may continue to allow PIN-based approaches, our plan is to emphasize digital signatures based on ‘public key infrastructure’ (PKI) certificates, given the increasing support for – and acceptance of – PKI for commercial purposes. (For an explanation of PKI, see Section V.B.1 of this preamble.) And, we plan to consider and allow for other signature

technologies as they become viable for our applications.

This proposal also represents some important changes in EPA's regulatory strategy as well. To begin with, we are proposing to abandon any attempt to use regulations or formal policies to place technology-specific or procedural requirements on regulated entities submitting electronic documents. In place of the technology-specific/procedural provisions, our regulation will require that electronic submissions be made to designated EPA systems, or to State, tribal or local government systems that are determined to satisfy a certain set of function-based criteria. Thus, as a rulemaking, today's proposal will govern electronic reporting by placing requirements on the systems that receive the electronic documents – rather than on the regulated entities submitting them – and by specifying these requirements in terms of technology-neutral functionality.

This new regulatory strategy does not mean that we are proposing to abandon any control over how electronic documents are submitted. We are proposing instead to require the use of the 'Central Data Exchange' (CDX) system or other EPA designated systems for submissions to EPA. While the rule may be technology-neutral, CDX itself will incorporate a suite of very specific technologies, including digital signatures based on 'public key infrastructure' (PKI) certificates, described in detail below. In addition, while the rule itself will not require more than the use of CDX for electronic submissions to EPA, using CDX will – as a practical matter – impose a very well-determined set of requirements on the reporting process for those who choose electronic submission instead of paper when reporting directly to EPA. Section V of this preamble will describe these requirements in some detail.

These changes in strategy are significant. They represent a decision that the mechanics of electronically submitting data should not be reflected in specific regulatory provisions. In addition, these changes give EPA the flexibility to adapt our electronic reporting systems to evolving technologies without having to amend our regulations with each technological innovation. That is, CDX or other designated systems can be changed as appropriate, so long as they continue to satisfy the function-based criteria that the rule establishes. In general, we believe that this strategy will enable EPA, the States and tribes to offer regulated companies a very user-friendly approach to electronic reporting that can be tailored to the level of automation they wish to achieve, and can incorporate improved technologies as they become available without the delay associated with rulemaking.

C. Why is EPA proposing these changes in electronic reporting policy?

EPA is proposing these changes for three reasons. First, and most important, the technology environment has changed substantially since the September, 1996, policy was written. Web-based electronic commerce and Public Key Infrastructure (PKI) provide two obvious examples. While both were available and in use for some purposes in 1996, they had not yet achieved the level of acceptance and use that they enjoy today. We could not have anticipated in 1996 that this evolution would occur as rapidly as it has. Clearly, these developments require that we extend our approach to electronic

reporting beyond EDI and PINs. In addition, they teach us that it is generally unwise to base regulatory requirements on the existing information technology environment or on assumptions about the speed and direction of technological evolution.

Second, we believe that technology-specific provisions would, of necessity, be very complex and unwieldy. The resulting regulation would likely place unacceptable burdens on regulated entities trying to understand and comply with it, and might also be difficult for EPA to administer and enforce.

Third, and finally, an electronic reporting architecture that makes a centralized EPA, State or tribal system the platform for such functions as electronic signature/certification is now quite viable – and quite consistent with the standard practices of Web-based electronic commerce. In many ways, regulated entities' electronic transactions with the 'Central Data Exchange' (CDX) will be similar to doing business with an on-line travel agency, book store, or brokerage, and with a similar client-server architecture. Given the state of technology five years ago, we could not have considered this approach in the September, 1996, policy.

D. What is EPA's approach to electronic record-keeping?

Today's proposal sets forth the criteria under which the Agency considers electronic records to be trustworthy, reliable, and generally equivalent to paper records in satisfying regulatory requirements. The intended effect of this proposed rule is to permit use of electronic technologies in a manner that is consistent with EPA's overall mission and that preserves the integrity of the Agency's enforcement activities.

E. What information is EPA seeking about electronic reporting and record-keeping proposals?

In proposing to allow regulated entities to submit electronic documents and maintain electronic records, EPA has, at least, the following three goals:

2. to reduce the cost and burden of data transfer and maintenance for all parties to the data exchanges;
3. to improve the data – and the various business processes associated with its use – in ways that may not be reflected directly in cost-reductions, e.g. through improvements in data quality, and the speed and convenience with which data may be transferred and used; and
4. to maintain or improve the level of corporate and individual responsibility and accountability for electronic reports and records that currently exists in the paper environment.

EPA is seeking comment and information on how well today's proposed regulatory provisions and the associated Central Data Exchange infrastructure will serve to fulfill these three goals. Concerning the first – addressing cost and burden – EPA is particularly interested in and seeks comment on whether today's proposal will make electronic reporting and record-keeping a practical and attractive

option for smaller regulated entities, especially small businesses. Concerning the second – addressing the data and the associated business process – we are especially interested in comments on how our proposed approach to electronic reporting and record-keeping will affect third parties, for example State and local agencies that may collect and/or use the data in implementing EPA programs as well as members of the public who have an interest in the data as concerned citizens.

Concerning our third goal, it is essential that we continue to ensure sufficient personal and corporate responsibility and accountability in the submission of electronic reports and the maintenance of electronic records; otherwise we place at risk the continuing viability of self-monitoring and self-reporting that provides the framework for compliance under most of our environmental programs. Therefore, EPA is especially interested in any concerns or issues that commenters may wish to raise about the effect that moving from paper to the electronic medium may have on this compliance structure – as well as assessments of the approaches EPA is proposing to address these concerns.

F. How were stakeholders consulted in developing today's proposal?

Today's proposal reflects more than eight years of interaction with stakeholders – including State and local governments, industry groups, the legal community, environmental non-government organizations, ANSI ASC X12 sub-committees, and other federal agencies. Many of our most significant interactions involved electronic reporting pilot projects conducted with State agency partners, including the States of Pennsylvania, New York, Arizona, and several others. In addition, over a two-year period beginning in May, 1997, EPA worked together with approximately 35 States on the State Electronic Commerce/Electronic Data Interchange Steering Committee (SEES) convened by the National Governors' Association (NGA) Center for Best Practices (CBP). The product of the SEES effort was a document entitled, "A State Guide for Electronic Reporting of Environmental Data," available in the docket for this rulemaking, along with reports on some of the more recent state/EPA electronic reporting pilots. Information on SEES is also available at: www.nga.org/CBP/Activities/EnviroReporting.asp. Today's proposal has benefitted greatly from the SEES discussions, and EPA believes that the proposal is generally consistent with the SEES "State Guide".

Beginning in June, 1999, EPA also sponsored a series of conferences and meetings with the explicit purpose of seeking stakeholder advice on today's rulemaking. These included:

5. The Symposium on Legal Implications of Environmental Electronic Reporting, June 23-25, 1999, convened by the Environmental Law Institute;
6. Two NGA-convened State meetings, held in Cleveland, April 11 - 12, 2000, and in Phoenix, June 1 - 2, 2000; and
7. Two public meetings, held in Chicago, June 6, 2000, and in Washington, D.C., July 11, 2000.

Reports of these conferences and meetings are also available in the rulemaking docket.

III. SCOPE OF TODAY'S PROPOSAL

A. Who may submit electronic documents and maintain electronic records?

Any regulated company or other entity that submits documents addressed by today's proposal (see section III.B., below) directly to EPA can submit them electronically as soon as EPA announces that the Central Data Exchange or a designated alternative system is ready to receive these reports. Any regulated company or other entity that maintains records addressed by today's proposal (see section III.C., below) under EPA regulations can store them in an electronic form subject to the proposed criteria for electronic record-keeping as soon as EPA announces that the specified records may be kept electronically. As noted in section I.B of this preamble, the rule will not authorize the conversion of existing paper records to an electronic format. Regulated companies or other entities that submit documents or maintain records under authorized State or tribal programs may submit or maintain them electronically as soon as EPA approves the changes to the authorized programs that are necessary to implement the State's or tribe's provisions for electronic reporting or record-keeping.

Under today's proposal, the entities that can use electronic reporting and record-keeping will not be required to do so; they can still use the medium of paper for document submissions and records if they choose. Nonetheless, nothing in this proposal will prohibit State, tribal or local authorities from requiring electronic reporting or record-keeping under applicable State, tribal and local law.

B. How does today's proposal relate to the new E-SIGN legislation?

The environmental reports and records that are the subject of this rule are generally not subject to the recently enacted "Electronic Signatures in Global and National Commerce Act of 2000" ("E-SIGN" or "the Act"), public law 106-229, because most of these governmentally-mandated documents are not amongst the "transactions" to which E-SIGN applies. However, the EPA has authority to permit electronic reporting under the statutes it administers and under the Government Paperwork Elimination Act (GPEA) of 1998, public law 105-277, <http://ec.fed.gove/gpedoc.htm>. E-SIGN, establishes the legal equivalence between: (1) contracts written on paper and contracts in electronic form; (2) pen-and-ink signatures and electronic signatures; and (3) other legally-required written documents (termed "records" in the statute) and the same information in electronic form. As a general rule, if parties to a transaction in interstate commerce choose to use electronic signatures and records, E-SIGN grants legal recognition to those methods. E-SIGN provides that no contract, signature, or record relating to such a transaction shall be denied legal effect solely because it is in electronic form, nor may such a document be denied legal effect solely because an electronic signature or record was used in its formation. GPEA also provides such language for government filings covered by this rule and provides similar legal validity for associated electronic signatures. When E-SIGN takes effect on October 1, 2000, statutes or agency rules containing paper-based requirements that might otherwise deny effect to electronic signatures and records in consumer, commercial or business transactions between two or

more parties will be superseded. E-SIGN does, however, permit federal and State agencies to set technology-neutral standards and formats for the submission and retention of electronic documents.

E-SIGN applies broadly to commercial, consumer, and business transactions in or affecting interstate or foreign commerce, including transactions regulated by both federal and State government. However, the conferees who drafted this legislation specifically excluded “governmental transactions” from the definition of transactions that are subject to E-SIGN; accordingly, E-SIGN does not cover transactions that are uniquely governmental, such as the transmission of a compliance report to a federal or State agency. Nonetheless, E-SIGN does cover documents that are created in a commercial, consumer, or business transaction, even if those documents are also submitted to a governmental agency or retained by the regulated community for governmental purposes. For example, an insurance contract that is commemorated in an electronic document will be covered by the provisions of E-SIGN, even if EPA or an authorized State requires that the policy-holder maintain proof of insurance as part of a federal or State environmental program. In order to ensure that these documents will meet governmental needs, the Act permits the government to set technology-neutral standards and formats for such records. In order that governmental agencies have time to promulgate these standards and formats, E-SIGN has a delayed effective date for its record-retention provisions of March 1, 2001. If a federal or State regulatory agency has proposed a standard or format for document retention by March 1, 2001, the Act will take effect with respect to those records on June 1, 2001.

C. Which documents could be filed electronically?

With the exception of the Hazardous Waste Manifest (which EPA is addressing in a separate electronic reporting rule), today’s proposal addresses document submissions required by or permitted under any EPA or authorized State, tribal or local program governed by EPA’s regulations in Title 40 of the *Code of Federal Regulations* (CFR). Nonetheless, EPA will need time to develop the hardware and software components required for each individual type of document. Similarly, EPA will need time to evaluate State, tribal, and local electronic document receiving systems to ensure that they meet the criteria articulated in today’s proposal. Accordingly, once this rule takes effect, documents subject to this rule submitted directly to EPA can only be submitted electronically after EPA announces in the *Federal Register* that the Central Data Exchange (CDX) or an alternative system is ready to receive them. Documents subject to this rule submitted under an authorized State or tribal program can only be submitted electronically once EPA has approved the necessary changes to the authorized program.

Both in developing the CDX, and in approving changes to authorized State and tribal programs related to electronic reporting, EPA plans to give priority to receipt of the relatively high volume environmental compliance reports that do not involve the submission of confidential business information (CBI). EPA believes that receipt of electronically transmitted CBI requires considerably stronger security measures than the initial version of CDX may be able to support, including provisions for encryption. While EPA does plan to enhance CDX to accommodate CBI, we will first want to gain

experience implementing CDX in the non-CBI arena and also take the time to explore CBI security issues with companies that submit confidential data. EPA seeks comments and advice on priorities for electronic reporting implementation. EPA also seeks comments on this proposal's global approach, and whether specific exclusions should be added to the rule.

D. Which records can be maintained electronically and which can not?

Today's proposal addresses records that EPA or authorized State, tribal or local programs require regulated entities to maintain under any of the environmental programs governed by Title 40 of the CFR or related State, tribal and local laws and regulations. Nonetheless, individual EPA programs may need additional time to consider more specific provisions for administering the maintenance of electronic records under their regulations. Similarly, EPA will need time to evaluate State, tribal, and local programs' provisions for administering electronic records maintenance to ensure that such records will meet the criteria articulated in today's proposal. Accordingly, once this rule takes effect, any records subject to this rule submitted directly to EPA can only be maintained electronically after EPA announces in the *Federal Register* that EPA is ready to allow electronic records maintenance to satisfy the specified record-keeping requirements. Records subject to this rule maintained under an authorized State or tribal program can only be maintained electronically once EPA has approved the necessary changes to the authorized program. For electronic records specified in such *Federal Register* announcements or authorized program changes, they can be maintained in lieu of paper records so long as they meet the requirements in this proposal, unless paper records are specifically required in regulations promulgated on or after promulgation of this final rule. However, today's proposal will not apply to paper records that are already in existence – whether these are maintained under EPA programs or under authorized State, tribal or local programs – and will not provide that any of these paper records can be converted to an electronic format. In addition, today's proposal does not address contracts, grants, or financial management regulations contained in Title 48 of the CFR. EPA is addressing such procurement-related activities separately. Accordingly, today's proposal does not apply to records maintained under these Title 48 regulations, whether this record-keeping was administered by EPA or by a State, tribal or local program under EPA authorization.

E. How would today's proposal implement electronic reporting and record-keeping?

EPA proposes our overall policy and requirements for electronic reporting and record-keeping as a new 40 CFR Part 3, which consists of four (4) Subparts. Subpart A provides that any reporting requirement in Title 40 can be satisfied with an electronic submission to EPA that meets certain conditions (specified in Subpart B) once EPA publishes a notice that electronic document submission is available for this requirement. Similarly, Subpart A provides that any record-keeping requirement in Title 40 can be satisfied with electronic records that meet certain conditions (specified in Subpart C) once EPA publishes a notice that electronic record-keeping is available for this requirement. Subpart A also provides that electronic reporting and record-keeping can be made available under EPA-authorized State, tribal or local environmental programs as soon as EPA approves the necessary

changes to these authorized programs (in accordance with Subpart D). In addition, subpart A makes clear: (1) that electronic document submission or record-keeping, while permissible under the terms of this Part, will not be required; and (2) that this regulation will confer no right or privilege to submit data electronically and will not obligate EPA or State, tribal or local agencies to accept electronic data except as provided under this regulation.

Subpart B sets forth the general requirements for acceptable electronic documents submitted to EPA. It provides that electronic documents must be submitted either to EPA's Central Data Exchange (CDX) or other EPA designated systems. It also includes general requirements for electronic signatures. Subpart C sets forth requirements that regulated entities must satisfy if they wish to maintain their electronic records in satisfaction of EPA record-keeping requirements. Finally, subpart D sets forth the process and criteria for EPA approval of changes to authorized State, tribal and local environmental programs to allow electronic document submissions or record-keeping to satisfy requirements under these programs. With respect to electronic document submissions, subpart D includes detailed criteria for acceptable State, tribal or local agency electronic document receiving systems against which EPA will assess authorized program implementations of electronic reporting.

The table below describes the applicability of each of these proposed new subparts.

Subpart	Applicability
A. General Provisions	Companies and other entities regulated under Title 40 of the Code of Federal Regulations, and State, tribal and local agencies with electronic document receiving systems used to receive documents under their authorized programs.
B. Electronic Reporting to EPA	Companies and other entities regulated under Title 40 of the Code of Federal Regulations.
C. Electronic Record-keeping under EPA Programs	Companies and other entities regulated under Title 40 of the Code of Federal Regulations.
D. Approval of Electronic Reporting and Record-keeping under State Programs	State, tribal and local agencies with electronic document receiving systems or electronic record-keeping programs for which EPA approval is required.

Given the proposed provisions of Subpart A, a regulated entity wishing to determine whether electronic reporting or record-keeping was available under some specific regulation will have to verify that EPA has published a *Federal Register* notice announcing their availability and will have to locate

any additional provisions or instructions governing the electronic option for the particular reporting or record-keeping requirements. EPA seeks comments on whether the new Part 3 should include specific cross-references to such announcements and instructions to the extent that these are codified elsewhere in Title 40. The cross references could be organized by CFR subparts of Title 40, and could provide a simple listing of program-specific regulations for which EPA has implemented electronic reporting or record-keeping under the provisions of today's proposal. EPA invites suggestions on the most helpful cross-referencing scheme.

IV. THE REQUIREMENTS IN TODAY'S PROPOSAL

A. What are the proposed requirements for electronic reporting to EPA?

Today's proposal specifies just two requirements for electronic reporting to EPA. First, electronic documents must be submitted to an appropriate EPA electronic document receiving system; generally this will be EPA's Central Data Exchange (CDX), although EPA can also designate additional systems for the receipt of electronic documents. Second, where an electronic document must bear a signature under existing regulations or guidance, it must be signed (by the person authorized to sign under the current applicable provision) with an electronic signature that can be validated using the appropriate EPA electronic document receiving system. The proposal stipulates that the electronic signature will make the person who signs the document responsible, or bound, or obligated to the same extent as he or she would be signing the corresponding paper document by hand. Only electronic submissions that meet these two requirements will be recognized as satisfying a federal environmental reporting requirement, although failure to satisfy these requirements will not preclude EPA from bringing an enforcement action based on the submission.

It should be noted that the second requirement, concerning signatures, will apply only where the document would have to bear a signature were it to be submitted on paper, either because this is stipulated in regulations or guidance, or because a signature is required to complete the paper form. Today's proposal is not intended to require additional signatures on documents when they are migrated from paper to electronic submission. The EPA electronic document receiving system will indicate to the submitter whether a signature is required to complete submission of an electronic document – although the presence or absence of this indication will not affect whether or not a signature is required for a document to have legal effect.

Beyond these two requirements, the proposed rule does not specify any required hardware or software. Accordingly, the proposed rule text does not include any detail about CDX *per se* or about what will be required of regulated entities who wish to use it. Nonetheless, in publishing today's proposal, one of EPA's goals is to share our plans for the CDX and to invite comments on the technical approaches that it represents. Therefore, section V, below, explains the details of CDX as it is currently planned – including CDX technical approaches to satisfying our proposed functional criteria, and what use of CDX to submit electronic documents will require of the users. We are also including

the draft CDX design specifications in the docket for today's proposed rule. In reviewing these materials, however, the reader should bear in mind that the details of CDX that they specify have not been finalized, and may be affected by the comments received on today's proposal. In the preamble to the notice of final rulemaking for today's proposal, EPA will describe the details of CDX as it will actually be implemented, and will highlight any significant changes from the design as described in this proposal.

Of course, even after the current CDX design is finalized and implemented, the system may change – to take advantage of opportunities offered by evolving technologies, as well as to correct any deficiencies that operational experience reveals. Our proposed regulatory strategy – avoiding the codification of technology-specific/procedural provisions – is meant to accommodate such changes without requiring that we amend our regulations. Nonetheless, EPA recognizes that such changes can be disruptive to regulated entities that participate in electronic reporting; therefore, we are adding provisions that commit EPA to provide adequate public notice where a contemplated change may have this impact. In general, we foresee four kinds of cases:

3. *major changes* that can be disruptive to regulated entities; these will likely affect the kinds of hardware or software required to submit electronic reports – examples may include required changes to the file formats CDX will accept, or to the required electronic signature technology, *but will not generally include* optional upgrades to software, the provision of additional formatting (or other technical) options, or changes to CDX that simply reflect changes to the regulatory reporting requirements that the system is supporting;
4. *minor changes* that will likely not be disruptive; these will affect the user interface but without affecting the hardware or software required to submit electronic reports – examples may include changes to screen layouts, or sequencing of user prompts;
5. *transparent changes* that will affect CDX operation without any apparent change in interaction with submitters – an example may be a change to the CDX archiving process; and
6. *emergency changes* necessary to protect the security or operational integrity of CDX – an example may be an upgrade to the system firewall protection.

Our approach will then be to provide public notice and seek comment on *major changes* at least a year in advance of contemplated implementation. For *minor changes* we will provide public notice at least 60 days in advance of implementation. For *transparent changes* and *emergency changes* we will make decisions on whether and when to provide public notice on a case-by-case basis. EPA seeks comment on this approach, including the kinds of cases we distinguish and the proposed time-frames for notice. We are especially interested in views on the appropriateness of the time-frame for notice of major changes – and specifically on whether a shorter time-frame, e.g. 9 months or 6 months, would provide adequate notice while giving EPA greater flexibility to make timely responses to changes in the technological environment. We also seek comment on the more general question of whether it is in the best interests of EPA and our regulated entities to codify these public notice provisions at all, or whether they may place at risk our ability to be sufficiently responsive the changing needs of our user

community. We are also interested in the question of whether the different kinds of cases are or can be defined with sufficient precision to form the basis for workable regulatory provisions, and we welcome any suggestions for alternative regulatory language.

What requirements must electronically maintained records satisfy?

1. General Approach In today's proposed rule, EPA is proposing a set of criteria that will have to be met by regulated entities that maintain electronic records in lieu of paper records, to satisfy record-keeping requirements under EPA regulations in Title 40 of the CFR. The proposed criteria address the minimal functional capabilities that an electronic record-retention system must possess in order for an electronic record or document to meet a federal environmental record-keeping requirement. Regulated entities that use electronic systems to create, modify, maintain, or transmit electronic records will need to employ procedures and controls designed to meet the minimum criteria in today's rule. These criteria are designed to insure that electronic records are trustworthy and reliable, available to EPA and other agencies and their authorized representatives in accordance with applicable federal law, and admissible as evidence in a court of law to the same extent as a corresponding paper record.

2. EPA's proposed criteria for electronic record-retention systems. In general, EPA believes that for electronic records to be trustworthy and reliable, their corresponding electronic record-retention system must: 1) generate and maintain accurate and complete copies of records and documents in a form that does not allow alteration of the record without detection; 2) ensure that records are not altered throughout the records' retention period; 3) produce accurate and complete copies of an electronic record and render these copies readily available, in both human readable and electronic form as required by predicate regulations, throughout the entire retention period; 4) ensure that any record bearing an electronic signature contains the name of the signatory, the date and time of signature, and any information that explains the meaning affixed to the signature; 5) protect electronic signatures so that any signature that has been affixed to a record cannot be detached, copied, or otherwise compromised; 6) use secure, computer-generated, time-stamped audit trails to automatically record the date and time of operator entries and actions that create, modify, or delete electronic records; (An audit trail is an important element of any acceptable electronic record, for it provides an electronic record of key entries and actions to a record throughout its life cycle. Such audit trail documentation needs to be retained for a period at least as long as that required for the subject electronic records. Audit trail documentation also needs to be available for agency review.) 7) ensure that records are searchable and retrievable for reference and secondary uses, including inspections, audits, legal proceedings, third party disclosures, as required by predicate regulations, throughout the entire retention period; 8) archive electronic records in an electronic form that preserves the context, metadata, and audit trail; (Depending on the record retention period required in predicate regulations, regulated entities must insure that the complete records, including the related metadata, can be maintained in secure and accessible form on the preexisting system or migrated to a new system, as needed, throughout the required retention period.) and 9) make computer systems (including hardware and software), controls,

and attendant documentation readily available for agency inspection. EPA believes that where these 9 criteria are met, records required to be maintained under EPA regulations, can be kept electronically, including where they involve or incorporate signatures.

3. Electronic Records with electronic signatures. Where electronic records involve or incorporate electronic signatures meeting the requirements under Subpart C of this proposal, EPA will consider the electronic signatures to be equivalent to hand-written signatures. EPA believes the criteria described in paragraph B.2. above address the conditions for cases of electronic records involving signatures, such as: first, a signed electronic record must contain information associated with the signing that clearly indicates the name of the signer, the date and time when the electronic record was signed, and, the meaning associated with the signature (such as review, approval, responsibility, authorship, etc.); second, electronic signatures must be linked to their respective electronic records to ensure that the signatures cannot be excised, copied or otherwise transferred so as to falsify an electronic record by ordinary means; third, this information will be subject to the same controls as those for electronic records and must be included as part of any human readable form of the electronic record (such as electronic display or printout). EPA seeks comment on whether these criteria are appropriate and whether – taken together with the general criteria – they are sufficient to ensure that signatures associated with records fulfill their purpose. EPA also seeks comment on whether these criteria are appropriate for the maintenance of electronic records containing *digital* signatures. (For an explanation of digital signatures, and their role in CDX, see Section V.B.1 of this preamble.) The special issues involved in maintaining digitally signed records are discussed in Section IV.D.6 of this preamble – in connection with archiving requirements for electronic document receiving systems – and EPA is interested in views on whether these issues need to be more explicitly addressed by the criteria for electronic record-retention systems discussed here, especially the criterion provided in §3.100(5), which addresses the maintenance of the electronic signature as a part of the electronic record. EPA seeks comment on whether this provision should be expanded to accommodate some of possible procedures for archiving digital signatures referred to at the end of Section IV.D.6.

4. The Relation of these Requirements to Food and Drug Administration (FDA) Criteria The criteria set forth in today's proposed rule – both the general and those specific to records with associated signatures – are intended to be consistent with criteria set forth for electronic document systems in other relevant regulations, such as FDA's criteria in 21 CFR Part 11. EPA seeks comment on whether today's proposed requirements achieve this consistency, and whether this consistency is an appropriate goal for this rulemaking.

5. Storage Media Issues Given the fast-paced evolution of technology, it is realistic to expect that electronic records will be transferred from one media format to another during the required period of record retention. While EPA allows for such transfers in today's propose rule, any such transfer must occur in a fashion that ensures that the entire electronic record is preserved without modification. As noted earlier, the electronic record will include not only the electronic document itself, but also the required information regarding time of receipt, date of receipt, etc. Any method of migrating electronic

records from one electronic storage medium to another that fails to meet this criterion will not produce records that meet federal environmental record-retention requirements. For example, a CD-ROM version of a record originally stored on electromagnetic tape will not satisfy federal record-keeping requirements unless the method for transferring the record from one medium to the other employs error-checking software to ensure that the data is completely and faithfully transcribed. EPA seeks comment on whether this criterion is sufficient to ensure that the integrity and authenticity of the electronic record is maintained throughout its required record retention period.

6. Additional Options In addition to the criteria discussed above, EPA is currently evaluating the need for additional controls for electronic records under this rule. Over the course of the next five (5) months, EPA plans to conduct additional analysis, and based on the results of this analysis and the public comments received on the electronic record provisions contained in today's proposal, EPA may determine that additional provisions are required for electronic records. If such a determination is made, prior to proposal of the final rule, EPA will publish a supplemental notice detailing any additional electronic record provisions to be included in the final rule. We realize that the electronic records criteria in today's rule are not as detailed as that contained in FDA's 21 CFR Part 11 and seeks comments on whether our proposed criteria are sufficient to ensure the authenticity, integrity, and non-repudiation of electronic records maintained by regulated facilities in fulfillment of their compliance obligations. EPA is considering whether or not to include additional provisions found in the FDA regulations in our final rule. Such provisions could include the following: 1) establishment and implementation of written policies that limit system access to authorized individuals, as well as the use of authority checks to ensure that only authorized individuals can use the system, electronically sign a document, access the operation or computer system input or output device, alter a record, or perform the operation at hand; 2) establishment and implementation of written policies that hold individuals accountable and responsible for actions initiated under their electronic signatures, in order to deter record and signature falsification; 3) use of device (e.g., terminal) checks to determine the validity of the source of data input or operational instruction; 4) use of additional measures such as document encryption and use of appropriate digital signature standards to ensure, record authenticity, integrity, and non-repudiation; 5) routine and documented validation of systems to ensure accuracy, reliability, consistent intended performance, and the ability to discern invalid or altered records; 6) establishment and implementation of written policies governing education and training of personnel and certification that persons who develop, maintain, or use electronic record signature systems have the education, training, and experience to perform their assigned tasks. EPA is also seeking comment on the general feasibility of converting existing paper documents – including litigation-sensitive records – to electronic documents, as well as comments on the strengths and weakness of existing technologies available for this purpose.

C. What is the process that EPA will use to approve changes to authorized State and tribal programs related to electronic reporting and record-keeping?

EPA expects that States, tribes and local agencies that administer EPA-authorized environmental

programs will wish to implement electronic reporting and record-keeping at least as quickly and extensively as EPA. Therefore, in overseeing these programs, EPA wishes to balance multiple objectives of minimizing administrative burden on States, providing State flexibility for varying State approaches, and ensuring that State systems are robust enough to meet the demands of a strong enforcement capability. EPA considered several options for meeting these needs, including program-by-program approval processes – in each case under applicable EPA program-specific regulations – State self-certifications, and a centralized approval process. This proposal provides for State flexibility by specifying performance criteria rather than requiring specific technologies, and balances other objectives through use of a hybrid process for approving changes to authorized State and tribal programs.

Under this process, EPA will provide a single set of substantive performance criteria, listed in today's proposal, that will apply to any authorized program where EPA determines that electronic reporting and record-keeping will involve substantive changes to the program that will require EPA approval. Today's proposal contains language that would make compliance with these Part 3 criteria an element of all authorized State, tribal, or local programs that wish to accept electronic reports or allow electronic record-keeping, although the language does not change the *procedural* requirements for modifications to any of these programs. This means, for example, that a State planning to institute electronic reporting for an authorized program will have to meet the normal EPA approval requirements for that program – whether the approval sought is for a *single* program or for an electronic document receiving system that would support *multiple* authorized, delegated, or approved environmental programs. In the case where multiple programs will be affected, the State will still need to seek modification of each such program under existing program approval or revision procedures; however, EPA expects that it will evaluate such multiple applications in a single internal review. Moreover, EPA solicits comment on whether another approach should be taken to State and tribal program modification or revision for electronic reporting or record-keeping.

Alternatively, State, tribal or local agencies may wish to rely on third-party systems to receive reports on their behalf, where these systems are operated or owned by commercial or not-for-profit organizations. Today's proposal will allow this on the condition that the electronic document receiving system employed by the State, tribal or local agency satisfy the substantive performance criteria that we specify, and authorization approvals are obtained where necessary.

What criteria are EPA proposing that State electronic report receiving systems must satisfy?

In today's proposed rule, EPA is providing a set of criteria that will have to be met by any system that is used to receive electronic documents submitted to satisfy electronic document submission requirements under any EPA-authorized State, tribal, or local environmental program. The proposed criteria address the functional capabilities that EPA believes a State's, tribe's or local government's 'electronic document receiving system' must have if it is to ensure the authenticity and non-repudiation of these electronic documents. EPA has developed these criteria to ensure that any electronic

document has the same legal dependability as its paper counterparts. EPA does not intend to imply that information or documents derived from electronic reporting or record-keeping systems that do not meet all of EPA's criteria, or from transactions that were not in compliance with all applicable requirements and agreements, could not be introduced as evidence at trial, would not constitute admissions, or would not constitute records required by, or used for compliance with, applicable statutes (e.g., Clean Water Act section 309(c)(4), Resource Conservation and Recovery Act section 3008(d)(3)). EPA's criteria are intended to result in systems and records that will provide the best evidence for use by plaintiffs and prosecutors in enforcement actions, and to facilitate the success of such enforcement actions.

These criteria are designed to ensure any electronic document used as evidence in the course of prosecuting an environmental crime or civil violation will have the same or better evidentiary value as its paper equivalent. For example, the criteria are designed to ensure that in prosecuting the crime of deliberate falsification of compliance data, the identity of the person who signed a falsified document can be established beyond a reasonable doubt. One of the criteria, entitled "Validity of Data," and proposed in section 3.2000(b), addresses this standard directly. In general, a system that is used to receive electronic documents must be capable of reliably generating proof for use in private litigation, enforcement proceedings, and criminal proceedings in which the standard for conviction is proof beyond a reasonable doubt that the electronic document was actually submitted by the signatory and that the data it contains was not submitted in error.

To satisfy this general criterion, an electronic document receiving system must establish: 1) that an electronic document was sent (or not sent), 2) when the document was sent, 3) by whom the document was sent, including both individual and the identity of any entity the individual is authorized to represent, 4) when the document was received, 5) that the document was not altered from the time it was sent to the time it was received, and 6) the contents of the document sent. In addition the electronic document receiving system must store and be able to retrieve every electronic document without alteration to its content or loss or the information regarding time of transmission, receipt, and authorship. The remaining, more specific criteria have been developed to meet these goals, while at the same time taking account of what can reasonably be expected of the various types of electronic reporting technologies currently available.

It should be noted that many of these criteria will not apply, or not apply in full, where the electronic document receiving system will not be used to receive documents bearing signatures or documents used in litigation or enforcement proceedings. Generally, documents not requiring signature are less likely to play a role in criminal prosecutions; therefore, the criterion that refers to "Validity of Data" might not apply to systems that receive such documents. In addition, the specifications of "electronic signature method," and "electronic signature/certification scenario" will be inapplicable, along with any provision connected with "system security requirements," "registration process," "transaction record," and "system archives" that refers to signature. EPA invites comment on the exclusion of these criteria in cases where systems will not receive signed documents or documents used in litigation or enforcement

and criminal proceedings. EPA will consider the possibility of developing a set of criteria explicitly addressing electronic document receiving systems that will not receive electronically signed documents if it appears that States, tribes or local governments want to implement such systems for their authorized environmental programs. Such systems might be appropriate, for example, in the cases where agencies wished to accept electronic submissions of data but continued to require that associated certification statements be signed and submitted on paper. EPA invites comment on whether it would be worth developing the alternative set of criteria for systems that exclude electronic signatures.

1. General System-security Requirements. Proposed section 3.2000(a) requires every system used to receive electronic documents to 1) have robust protections against unauthorized access to the system; 2) have robust protections against the unauthorized use of any electronic signature on documents received; 3) provide for the detection of unauthorized access or attempted access to the system and unauthorized use or attempted use of any electronic signature on documents received; 4) provide safeguards to prevent the modification of an electronic report once an electronic signature has been affixed; 5) ensure that every electronic record is protected from modification or deletion; 6) provide safeguards to ensure that the system clock is accurate and protected from tampering or other compromise; and 7) provide safeguards to prevent any other corruption or compromise of the system.

We believe each of the seven proposed requirements is important to maintain the overall security of an electronic document receiving system. We seek comment on whether – taken together – they are sufficient to ensure that the system can maintain the integrity and authenticity of the electronic documents it receives and maintains.

2. Electronic Signature Method. To support the goals articulated under proposed section 3.2000(b) as the “Validity of Data” criterion, proposed section 3.2000(c) stipulates that an electronic document receiving system must validate only those electronic signatures that are created by a method that 1) involves a registration process that identifies the bearer of an electronic signature; 2) includes all elements of an adequate signature/certification scenario (described in paragraph 4, below); 3) provides safeguards to prevent excise, modification, or appropriation of an affixed electronic signature; 4) provides safeguards to prevent use of an electronic signature by anyone other than the individual to whom it has been issued; and 5) ensures that it is impossible to modify an electronic document without detection once the electronic signature has been affixed. This last proposed requirement is sometimes expressed by saying that the signature must be “bound” to the contents of the report. We seek comment on whether these conditions are appropriate, and whether – taken together – they suffice to ensure that electronic signatures affixed to electronic documents will have the same or better evidentiary value as handwritten signatures on paper documents for purposes of prosecuting an environmental crime or civil violation..

3. Submitter Registration Process. In order to link a digital signature to the bearer of that signature, proposed section 3.2000(d) requires that an electronic document receiving system validate only those electronic signatures that are established through a process which registers identified individuals both as

system users and as signature holders. EPA also proposes to require that an individual may not complete this registration process without first executing an agreement with the administering agency to properly use and protect the electronic signature.

Of course, the registration process must also establish the identity of the registering individual and any entity that the individual is authorized to represent. Given the general “Validity of Data” criterion under section 3.2000(b), the process must establish the registrant’s identity with information that will be sufficient to prove that this individual was the signature holder for purposes of private litigation, enforcement proceedings, and criminal proceedings. This requires at least that the registrant provide evidence of identity which can be verified by information sources that are independent of this individual and the regulated entity with which he or she is associated.

As noted above, the rule requires that a registrant sign an agreement to properly use and protect his or her electronic signature. EPA proposes that the terms in any such agreement include, at a minimum, a commitment to: 1) protect the electronic signature from unauthorized use; 2) be as legally-bound by use of the electronic signature as by hand-written signature; 3) where the signature device is based on a secret, e.g., a code, to maintain the secrecy of the electronic signature device; 4) immediately report any evidence that the electronic signature has been compromised; and 5) where the assistance of third parties may be required to protect a signature from unauthorized use -- such as the assistance of system administrators in ensuring computer security, to secure such assistance. EPA believes that this agreement is important to ensure that the holder of an electronic signature understands how to properly use and protect the electronic signature. It is also important to ensure that the signature holder understand the legal effect of affixing the electronic signature to an electronic document. A proof that an individual’s registered electronic signature was affixed to a document will establish a permissive inference that the individual who was issued that signature affixed the signature and did so with the intent to sign the document. To achieve these goals, EPA believes that the signature agreement should consist of at least the following language:

“In accepting the electronic signature issued by [*specify name of issuing agency or organization*] to sign electronic documents submitted to [*specify the name of the electronic document receiving system*] on behalf of [*specify the name of regulated entity the signature-holder represents*], I, [*name of electronic signature holder*],

(1) agree to protect the signature from use by anyone except me, and to confirm system security with third parties where necessary. Specifically, I agree to [*specify procedures appropriate to the form of electronic signature, for example, to maintain the secrecy of the code where the signature is based on a secret code*];

(2) understand and agree that I will be held as legally bound, obligated, or responsible by my use of my electronic signature as I would be using my hand-written signature, and that legal action can be taken against me based on my use of my electronic signature in submitting an electronic document to [*specify the name of the receiving agency*];

- (3) agree never to delegate the use of my electronic signature or make my signature available for use by anyone else;
- (4) understand that whenever I electronically sign and submit an electronic document to [*specify the name of the electronic document receiving system*], acknowledgments and a copy of my submission as received will be made available to me;
- (5) agree to review the acknowledgments and copies of documents I electronically sign and submit to [*specify the name of the electronic document receiving system*];
- (6) agree to report to [*specify the agency or organization to be reported to*], within twenty-four (24) hours of discovery, any evidence of the loss, theft, or other compromise of any component of my electronic signature;
- (7) agree to report to [*specify the agency or organization to be reported to*], within twenty-four (24) hours of discovery, any evidence of discrepancy between an electronic document I have signed and submitted and what [*specify the name of the electronic document receiving system*] has received from me;
- (8) agree to notify [*specify the agency or organization to be reported to*] if I cease to represent [*specify the name of regulated entity the signature-holder represents*] as signatory of that organization's electronic submissions to [*specify the name of the electronic document receiving system*] as soon as this change in relationship occurs and to sign a surrender certification at that time."

In addition, given the importance of this agreement, EPA is also proposing that the registration process require that the agreement be renewed periodically, with the Administrator to determine the frequency of and the exact terms of the renewal statement, as well as whether a wet ink signature will be required. In making these determinations, EPA is proposing that the Administrator ensure that electronic reporting meets the overall goals of security and validity of data – articulated under proposed sections 3.2000(a) and 3.2000(b) – while taking into account the importance of keeping EPA practices consistent with marketplace standards for issuance and use of electronic signature devices in commerce. Given that both the technologies and marketplace practices surrounding electronic signatures are still evolving rapidly, EPA believes that the Administrator may need to revisit these determinations more than once, the proposed provision for these renewal agreements is intended to provide this flexibility.

In terms of frequency of renewal, likely candidates for the Administrator to consider are once every two years or three years, but he or she may certainly set a longer renewal cycle (either in general or with regard to a particular State, tribal or local government system) if less frequent renewal better corresponds to marketplace standards and can be determined to still meet security and validity of data goals. EPA seeks comment on the various alternatives for renewal frequency – including one year and longer than three years – considering both marketplace standards and the goals of security and validity of data. EPA also seeks comment on whether any of the candidate renewal cycles would raise any administrative issues for State, tribal or local governments, and whether the Administrator's ability to revisit this determination – with the implied potential for a change in system requirements – poses any

problems for systems planning or management.

Concerning the terms of the renewal agreement, EPA believes that in the interest of supporting the goals of security and validity of data, the Administrator is likely to require the holder of the electronic signature to attest to compliance with the terms of the prior agreement since the time it was signed. To accomplish this, the Administrator may require that the signature-holder sign a statement that consists of at least the following:

“In continuing to use the electronic signature issued by *[specify name of issuing agency or organization]* to sign electronic documents submitted to *[specify the name of the electronic document receiving system]* on behalf of *[specify the name of regulated entity the signature-holder represents]*, I, *[name of electronic signature holder]* continue to,

- (1) agree to protect the signature from use by anyone except me, specifically, to *[specify procedures appropriate to the form of electronic signature, for example, to maintain the secrecy of the code where the signature is based on a secret code]*;
- (2) understand and agree that I will be held as legally bound, obligated, or responsible by my use of my electronic signature as I would be by using my hand-written signature, and that legal action can be taken against me based on my use of my electronic signature in submitting an electronic document to *[specify the name of the receiving agency]*;
- (3) agree never to delegate the use of my electronic signature or make my signature available for use by anyone else;
- (4) understand that whenever I electronically sign and submit an electronic document to *[specify the name of the electronic document receiving system]*, acknowledgments and a copy of my submission as received will be made available to me;
- (5) agree to review the acknowledgments and copies of documents I electronically sign and submit to *[specify the name of the electronic document receiving system]*;
- (6) agree to report to *[specify the agency or organization to be reported to]*, within twenty-four (24) hours of discovery, any evidence of the loss, theft, or other compromise of any component of my electronic signature;
- (7) agree to report to *[specify the agency or organization to be reported to]*, within twenty-four (24) hours of discovery, any evidence of discrepancy between an electronic document I have signed and submitted and what *[specify the name of the electronic document receiving system]* has received from me;
- (8) agree to notify *[specify the agency or organization to be reported to]* if I cease to represent *[specify the name of regulated entity the signature-holder represents]* as signatory of that organization’s electronic submissions to *[specify the name of the electronic document receiving system]* as soon as this change in relationship occurs and to sign a surrender certification at that time.

“Moreover, I certify that I have complied with the terms of the signature registration agreement I

signed on *[insert date of prior agreement]*, and since that date I have reviewed, signed and submitted all the electronic documents submitted with my electronic signature to *[specify the name of the electronic document receiving system]* on behalf of *[specify the name of regulated entity the signature-holder represents]*.”

EPA seeks comment on all of these proposed registration agreement and renewal statement provisions, including the proposed provision for administrative determination of the frequency and terms of the renewal agreements. Given the purpose of these agreements and renewal statements, EPA is particularly interested in comment on whether all of them are necessary, particularly considering requirements for the on-screen certification described under *Electronic Signature/Certification*, in the next section of this preamble (Section IV.D.4). To the extent that all these agreements and renewals are necessary, EPA also seeks comment on whether the specific language suggested for each provision is adequate or necessary. It should be noted that EPA is currently not proposing to codify the specific language for these certifications and statements in the rule, and EPA seeks comments on the question of codification. It should also be noted that the proposed rule specifies that the signature agreement be signed on paper or in other media that EPA may designate. While EPA will initially require signature agreements to be signed on paper – and the Administrator may initially require this of renewals as well – EPA has the flexibility to allow electronic signatures in the future, as circumstances may warrant, and when EPA believes that electronic signatures can effectively substitute for hand-written signatures on paper for these electronic signature agreements and renewals. EPA seeks comment on whether any or all of these agreements and statements should be signed on paper.

EPA also seeks comment on a possible additional certification statement, required to be signed when a signature holder surrenders the signature for whatever reason – e.g., change of jobs or retirement – although this requirement is not included as a provision in today’s proposal. In this surrender certification, the signature holder would be required to truthfully attest to compliance with the terms of the agreement since the most recent agreement was signed. If such a requirement is added, then EPA believes that the surrender certification signed by the signature holder should consist of at least the following:

“I certify that, since the time that I was first issued the electronic signature by *[specify name of issuing agency or organization]* to sign electronic documents submitted to *[specify the name of the electronic document receiving system]* on behalf of *[specify the name of regulated entity the signature-holder represents]*, I have complied with the terms of agreement to which I then subscribed, and specifically that I have:

- (1) protected the signature from use by anyone except me. Specifically, I have *[specify procedures appropriate to the form of electronic signature, for example, maintained the secrecy of the code where the signature is based on a secret code]*;
- (2) understood that I am held as legally bound, obligated, or responsible by my use of my electronic signature as I would be using my hand-written signature and that legal action can be taken against

me based on my use of my electronic signature in submitting an electronic document to [*specify the name of the receiving agency*];

(3) never delegated the use of my electronic signature or made my signature available for use by anyone else;

(4) understood that whenever I electronically signed and submitted an electronic document to [*specify the name of the electronic document receiving system*], acknowledgments and a copy of my submission as received were made available to me;

(5) reviewed the acknowledgments and copies of documents I electronically signed and submitted to [*specify the name of the electronic document receiving system*];

(6) reported to [*specify the agency or organization to be reported to*], within twenty-four (24) hours of discovery, if I ever had any evidence of the loss, theft, or other compromise of any component of my electronic signature;

(7) reported to [*specify the agency or organization to be reported to*], within twenty-four (24) hours of discovery, if I ever had any evidence of discrepancy between an electronic document I signed and submitted and what [*specify the name of the electronic document receiving system*] had received from me.

“Moreover, I certify that I have complied with the terms of the signature registration agreement I signed on [*insert date of the agreement signed when electronic signature was first issued*], and since that date I have reviewed, signed and submitted all the electronic documents submitted with my electronic signature to [*specify the name of the electronic document receiving system*] on behalf of [*specify the name of regulated entity the signature-holder represents*].”

Finally, EPA also solicits comment on whether some other mechanism is needed, in lieu of the registration agreement, to ensure that holders of electronic signatures properly use and protect their signatures. Specifically, EPA seeks comment on the possible alternative of adding a provision paralleling 21 CFR section 11.100(c)(2) (under the Food and Drug Administration’s electronic signature rule) requiring that signature holders, upon request, “provide additional certification or testimony that a specific electronic signature is the legally binding equivalent of the signer’s handwritten signature.” EPA seeks comment on whether codifying such a provision would provide a better method of ensuring the proper use and protection of signatures than the agreements, renewals and related certification statements that we are currently proposing.

EPA also proposes to require that an electronic document receiving system have a mechanism to automatically revoke an electronic signature whenever 1) there is any evidence the submitter has violated the registration agreement; 2) there is any evidence the electronic signature has been compromised; or 3) there is notification from an entity that the holder of an electronic signature previously authorized to represent that entity is no longer authorized to represent the entity. Revocation of a signature would not necessarily mean that the signature holder cannot be held accountable for previous uses of that signature, but it might lead the agency involved to require that particular materials be resubmitted. EPA seeks comment on whether there are other circumstances that should result in

automatic invalidation of an electronic signature.

It should be added that EPA proposes to require registration of any individual who submits electronic documents to an electronic document receiving system on behalf of an entity, regardless of whether the individual is issued an electronic signature, because EPA believes that registration strengthens system security and data integrity. Accordingly, the registration process for an individual who is not being issued an electronic signature will simply omit the signature-specific requirements. EPA seeks comment on this more general registration requirement.

4. Electronic Signature/Certification Scenario. In order for electronic document receiving systems to provide the same functionality as existing paper-based systems, the act of affixing an electronic signature to an electronic document must have the same meaning and legal effect as signing a paper document. In some instances, a signature indicates an intent to be bound to the commitments made in a document and constitutes an assertion that contents of the document are both truthful and accurate. In order to ensure that an electronic signature has the same meaning as its handwritten, paper counterpart, proposed section 3.2000(e) would require that an electronic document receiving system validate only those electronic signatures that are generated or affixed to an electronic document using a “signature/certification scenario” that ensures that the signatory understands and intends the legal consequence of affixing an electronic signature to an electronic document. This feature of an electronic document receiving system is important to ensure that each signed electronic document it receives can be used in civil and criminal enforcement, including cases against the holder of the electronic signature as signer of the electronic document.

EPA proposes to require that an electronic document receiving system must validate only electronic signatures that have been affixed after: 1) the submitter has scrolled through on-screen pages that present all the data to be certified in a familiar, human-readable format (§3.2000(e)(1)(i)); 2) the screen displays a certification statement that is similar or identical to the certifying language required on the corresponding paper submissions of the report, this display occurring just above the place on the screen where the submitter is prompted to initiate the signing process (§3.2000(e)(1)(ii)); and 3) the submitter has seen a warning – prominently displayed together with the certification statement described in (2) – that by initiating the signing process the submitter agrees that he or she is using the signature in compliance with the signature agreement that was signed when the signature device was issued (§3.2000(e)(1)(ii)).

The point of the first proposed condition is to ensure that the submitter reviews that data being submitted as a part of the signing process. Accordingly, an acceptable system must display the data in a format that clearly associates each data element with the name or label of the corresponding data field and also allow the submitter to carefully review all the data without time constraint. The point of the third proposed condition is to make certain the submitter fully understands that by activating the signature, he or she is taking a step with the same legal implications as signing and sending a report on paper. EPA is proposing this condition because of many environmental programs under which signing

and certifying a false report – whether on paper or electronically – may subject the signatory to criminal prosecution. At least for those cases where the “click of a mouse” may create the potential for criminal liability, then, EPA believes it is important to ensure that the submitter understands what the consequences of the act might be. For this purpose, EPA believes that this warning statement should consist of at least the following:

“WARNING: By signing this report, you agree that you are [*name of authorized signature holder*], have protected the security of your electronic signature as required by the electronic signature agreement which you signed on [*date of most recent signing*], and are otherwise using your electronic signature in accordance with that agreement.”

– although we are not proposing to codify this language in the rule. EPA seeks comments on whether this language should be codified, and, more generally, on whether the three conditions to be satisfied prior to signing are necessary and sufficient to establish that the signature was affixed with the requisite intent.

EPA also seeks comment on three alternative versions of this third proposed condition that would replace the “together with a prominently displayed warning...” language of (§3.2000(e)(1)(ii)) with a separate provision to be inserted just before (§3.2000(e)(1)(ii)). The simplest version would read:

“The signatory attests to compliance with an electronic signature agreement that is presented on-screen, refers to the signatory by name, and includes an acknowledgment that the signatory is the authorized registrant to whom the signature was issued; and...”.

A more robust version would read:

“The signatory attests to a statement that he or she is the authorized registrant – referred to by name – to whom the signature was issued, has taken reasonable steps to protect the signature, and does not have any reason to think that the signature has been used by anyone else; and...”.

The most robust version would read:

“The signatory attests to compliance with an electronic signature agreement that is presented on-screen, refers to the signatory by name, and includes an acknowledgment that the signatory is the authorized registrant to whom the signature was issued, has not in the past authorized any other person to sign on his or her behalf, has not at any time compromised the electronic signature, has reviewed all automatic acknowledgments for past submissions as described in paragraph (e)(2) of this section, and has no evidence that the signatory’s electronic signature or any other feature of the electronic submission mechanism has been compromised; and....”

Corresponding to the three versions of the proposed regulatory provision, the suggested (but not

proposed to be codified) language would be, starting with the simplest:

“(1) I, [*name of signatory*], am the authorized holder of the electronic signature I am about to use;
(2) I understand and agree that I will be held as legally bound, obligated, or responsible by my use of my electronic signature as I would by using my hand-written signature.”

next, the more robust:

“(1) I, [*name of signatory*], am the authorized holder of the electronic signature I am about to use;
(2) I have taken reasonable steps to protect my signature;
(3) To the best of my knowledge, my signature has never been used by anyone else.”

and, finally, the most robust:

“(1) I, [*name of signatory*], am the authorized holder of the electronic signature I am about to use;
(2) I have taken reasonable steps to protect my signature;
(3) To the best of my knowledge, my signature has never been used by anyone else;
(4) I have no other evidence that any component of my electronic signature has been lost, stolen or compromised in any way ;
(5) I have reviewed all the acknowledgments and copies of my previous submissions to [*specify the name of the electronic document receiving system*].”

EPA seeks comment on the appropriateness of these variant alternatives to the proposed ‘warning’ provision – and their corresponding suggested statements – for purposes of establishing the intent with which the signature was applied, helping to show that the signatory was in fact the authorized signature holder, and preventing signature compromise or repudiation. EPA is especially interested in the question of whether any of these provisions might tend to discourage regulated entities from choosing to submit environmental reports electronically. EPA is also interested in comments on the need for any version of this ‘warning’ provision in view of the certifications provided in conjunction with the renewals of signature agreement discussed in the preceding section of this preamble (Section IV.D.3).

In addition, we are proposing that, once the electronic signature is affixed, and the electronic document submitted, the signature/certification scenario must include two responses from the electronic document receiving system. The first is simply an automatic acknowledgment that the report has been received and any affixed electronic signature validated, with the time and date of receipt. The purpose of this acknowledgment is, at least in part, to alert the registered holder of an electronic signature if someone has appropriated the registered electronic signature and used it to submit spurious electronic documents. As noted above, the registered holder of the electronic signature will not be allowed to sign another electronic document once aware that it has been compromised.

EPA also proposes to require that the automatic acknowledgment be sent to an address that does

not share the same access control – for example, that is not protected by the same passwords or confidential log-in procedures – as the system from which the electronic report was signed and sent. The intent of this requirement is to frustrate unauthorized use of an electronic signature without detection. To elude detection, the intruder will have to compromise not only the signature protections, but also the additional system’s access controls. The additional address could be electronic or could be a United States Postal Service address. In any event, the feature of the electronic document receiving system should aid in the detection of compromised electronic signatures and reduce the frequency and strength of false claims that an electronic signature has been appropriated without the knowledge of the registered holder of the electronic signature.

The second response is what we are calling the ‘copy of record’, also automatically created and made available to the submitter. The *copy of record* must include the complete electronic document that was submitted. The copy of record must be complete in the sense that it must accurately associate all of the information provided by the submitter with the descriptions or labeling of the information being requested. In addition, to be complete, the *copy of record* must include all the warnings, instructions and certification statements presented to the submitter as a part of the signature/certification scenario. Finally, this *copy of record* must: 1) be viewable on-screen in a human-readable format that makes clear the association between each of the information elements provided by the submitter and the descriptions or labels in terms of which these elements were requested; 2) include the date and time of receipt; and 3) be signed with a secure, immutable agency electronic signature that is “bound” to this electronic document. As the name would suggest, the *copy of record* must be archived by the agency system, made available to the submitter for viewing and downloading, and protected from unauthorized access.

The proposed copy of record requirement is intended to detect spurious or compromised submissions, enabling timely disavowal of unintended submissions and reducing the frequency and strength of claims that an electronic document has been modified in transmission or unintentionally submitted. Under the signature/certification scenario in today’s proposed rule, the *copy of record* will be – strictly speaking – made available to the registered holder of the electronic signature. If the signature has somehow been compromised – or if the data is somehow different from what was intended to be submitted – this *copy of record*, together with the acknowledgments discussed above, will give the signature-holder an opportunity to alert the agency to the compromise of his/her signature and/or his/her data. This proposed requirement is also intended to protect the agency from attempts to falsely repudiate a submission.

EPA seeks comment on whether the number and type of responses from the electronic document receiving system adequately address the issue of spurious or compromised submissions. Specifically, we seek comment on the requirements placed on the automatic acknowledgments. In addition, we are interested in views on whether it will be generally feasible for electronic document receiving systems to create *copies of record* with all the attributes we are proposing that they have, and whether all of these attributes are necessary for the *copy of record* to fulfill its intended purpose.

5. Transaction Record. To help settle potential disputes over whether certain submissions were made, when they were made, what they contained, or who made them, an electronic document receiving system must create a transaction record for every submission of an electronic document. EPA will require that this record be created automatically, and include the precise routing of the signed electronic document from the submitter's computer to the receiving system and the *copy of record* described above. In addition, based on the receiving system's clock, this transaction record must include the precise date and time of: 1) the initial receipt of the reported data; 2) the receipt of the submitter's signed certification of the data (where this step is subsequent to the initial data transfer); 3) the sending of the acknowledgment notice; and 4) the creation of the *copy of record*. These details may be regarded as providing the 'chain of custody' for the submitted report, and help to establish its authenticity. EPA seeks comment on whether this *transaction record* specification is sufficiently robust to provide for 'chain of custody'.

6. System Archives. EPA also proposes to require that electronic document receiving systems maintain the contents of the *transaction record* described above – including the *copy of record* – for as long as they may be needed for enforcement or other programmatic purposes. In addition we are also proposing that the system must maintain records that show, for any given electronic submission not only *what* information was displayed to the user during the submission process – including the instructions, prompts, data labels, etc. captured in the *copy of record* – but also *how* this information was displayed, including the sequencing, functioning and overall appearance of these interface elements. The reason is that it may be difficult to interpret what some of the submission's data elements mean if we do not know the context within which they were provided – e.g., to what on-screen display or query a 'yes' was responding. Depending on exactly how the signing process is implemented, at least some of this interface information may be captured within the scope of what is bound by the signature, e.g., if the signature is applied to the entire content of the screens that are reviewed by the signatory during the signature/certification scenario. To whatever extent this occurs, the archiving of the 'copy of record' would contribute to this archiving of the interface.

The system must maintain the archived records in a way that can be shown to have preserved them without any modification since the time they were created; the system must be able to make these records available to users in a timely way as they are needed. EPA seeks comments on these archiving criteria, and especially on whether there are any issues raised by the need to maintain the *copy of record* – which includes electronic signatures – over long periods of time. Of particular concern are *copies of record* that include digital signatures, as they will for electronic submissions received by the Central Data Exchange (CDX). (For an explanation of digital signatures, and their role in CDX, see Section V.B.1 of this preamble.) Ideally, the system will preserve digital signatures in a form which allows them to be validated at any point during the life of the archived records that contain them; this is the standard implied by §3.2000(g)(2)(i) that requires the *copies of record* to be preserved "in their entirety" for the life of the archive. However, EPA realizes that this ideal may be difficult to implement in practice for several reasons, including:

4. the sensitivity of digital signatures to very minimal (and unavoidable) deterioration of the magnetic medium in which the records are stored – so that they no longer can be validated, even though the records remain usable in every other way;
5. the possible software dependence of the validation process – so that, as the archives' systems environment evolves over long periods of time, it may become increasingly difficult to operate the validation software designed to work with the archived signatures; and
6. the dependence of validation on the accessibility of a public key infrastructure (PKI) certificate that was valid when the digital signature was created – so that, over time, it may become increasingly difficult to determine the keys and identifying information associated with the signature.

EPA seeks comments on these and related difficulties that may stand in the way of validating archived digital signatures, and we welcome any advice on how these might be overcome. If these difficulties cannot be overcome, or overcome only at great expense, then EPA would seek to revise §3.2000(g)(2), by specifying alternatives to maintenance of the original signature and its validation as archived that would still allow users to demonstrate both the validity of the signature and the integrity of the record as a true picture of the data as it was signed. A possible approach might involve an archivists' wet-ink-on-paper certification that the digital signature was valid at the time the record was placed in the archive, together with appropriate measures to preserve the record unchanged. On another approach, the archivist might digitally resign the document at certain intervals, adding appropriate certifications about the validity of the original (or previous) signature on the document. EPA also seeks comment on such alternative approaches.

E. What are the Costs and Benefits Associated with Today's Proposal?

EPA estimates that today's proposal could result in an average annual reduction in reporting and record-keeping costs for those information collections identified as potentially benefitting from offering an electronic reporting option. Based on this analysis, EPA estimates that CROMERRR could result in an average annual reduction in burden of \$52.3 million per year for those facilities reporting, \$1.2 million per year for EPA, and \$1.24 million for each of the 30 states that were assumed to implement programs over the eight years of the analysis. For details of this study, see the technical background document, *Cross Media Electronic Reporting and Record-keeping Rule Cost Benefit Analysis* in the Docket for today's proposal. EPA requests comment on whether the underlying assumptions and the methods used in the cost benefit analysis provide a realistic estimate of the costs and benefits associated with electronic reporting and record keeping.

1. Scope and Method. The purposes of the analysis was to estimate the labor hour and total cost effects (either savings or increases) attributable to each of the major elements of the CROMERRR proposal and to assess, qualitatively, the environmental implications. The major elements include: the use of modern electronic technologies for the production, completion, signing, transmitting, and recording without the use of paper copies. Within the assessment of technologies we chose three forms

of electronic reporting (web forms, EDI, and XML) that EPA's CDX plans to support. For those entities using web forms, the costs of reporting to EPA electronically would be negligible, as EPA intends to provide the web forms and signature capabilities needed. In the latter two approaches (EDI and XML), EPA anticipates additional up-front cost will be incurred by regulated entities to establish EDI or XML file generation capabilities, but the savings will be larger over time, as these entities can more fully automate their reporting to EPA.

In the course of establishing projected estimates of costs and savings of electronic reporting and record-keeping, EPA had to establish a baseline of current costs. The current costs of paper-based reporting to EPA and States delegated the authority to manage an EPA reporting program were based on an extensive assessment of EPA's official information collection request (ICR) submissions that would be subject to the CROMERRR rule, as well as more detailed cost estimates performed on major EPA systems. In performing the analysis, over 50 ICRs were extensively reviewed and approximately 70 other ICRs were more summarily reviewed. A list of the ICRs, and the approach used to analyze them, are contained in Appendix A of *EPA's Cross Media Electronic Reporting and Record-keeping Rule Cost Benefit Analysis*. In the course of analyzing the ICR costs, reporting costs were broken into discrete functional areas (such as data entry, mailing, reconciliation, archiving and program management) and were analyzed for costs.

In addition to the ICR analysis, EPA performed analysis of the general costs and benefits of electronic reporting experienced by commercial and government agencies, as described in the *EPA Electronic Reporting Benefit/Cost Justification Report (June 30, 1999)*. EPA also conducted in-depth analyses of business processes and associated costs for several major EPA programs. These analyses include analyses for Toxic Release Inventory (TRI), National Pollutant Discharge Elimination System (NPDES), Public Water Supply System (PWSS) and selected Clean Air Act reports. In addition, EPA, in conjunction with State partners in the Arizona Department of Environmental Quality (ADEQ) and the Texas Natural Resources Conservation Commission (TNRCC), conducted assessments of the potential impacts and opportunities presented by environmental electronic reporting on their EPA-delegated state programs and affected regulated entities. These programmatic and state analyses are available in the CROMERRR docket. EPA also reviewed similar analyses performed for other EPA electronic reporting efforts, such as the proposed Hazardous Waste Manifest Automation Rule. EPA invites comments on the approach used for conducting the analysis and on the list of ICRs analyzed – whether this list encompasses the spectrum of EPA requirements impacted by CROMERRR and what additional information collections, if any, should be incorporated into further analysis.

Based the combined review of the functional areas (including data entry, mailing, reconciliation, archiving and program management) of individual ICRs, EPA identified general trends in the relative distribution of costs for each of the categories. Using the analyses conducted under the more in-depth studies performed, EPA was able to estimate the impacts of electronic reporting on each of the functional areas (including data entry, mailing, reconciliation, archiving and program management). For

instance, by offering facilities the electronic submission as an alternative to printing and mailing the paper submissions, the percentage of costs attributed to “mailing” could be eliminated. Using this logic, EPA added the relative percentages of reductions in each of these functional areas, and determined that a general reduction of 11 percent in the overall cost of reporting could be achieved through web-based submissions, and that a 25 percent reduction could be achieved for those facilities that implement EDI or XML based exchanges.

EPA is also considering a second series of analyses, using an alternative form of calculating the costs and savings to the Agency. In performing this alternative analysis EPA would still break the costs for a program report into discrete functional areas (i.e., data entry, mailing, etc.), however the estimates of reduction would use ‘absolute’ values instead of percentages. As an example, EPA program X has identified that the mailing of form B requires 10 minutes per submission. The costs for facilities choosing to submit electronically would take into account the elimination of mailing, and the costs for electronic reporting under that program would be reduced by 10 minutes for each submission. The advantage of this approach is that it offers potentially greater accuracy for estimating costs for each reporting program. A disadvantage is where the functional activity, such as program management, is only partially impacted by electronic reporting, determining an “absolute” value could involve arbitrary judgement calls on a program by program basis. EPA requests comment on ways to improve an analysis of this type as well as suggestions for other approaches that may better identify the potential costs and benefits of the proposed electronic reporting and record-keeping rule.

As discussed further below, two sets of regulatory cost reduction (savings) estimates were projected – one for web based submissions and one for EDI/XML – based on a range of alternate assumptions regarding the national adoption rates for automation options. In both cases, it was assumed that 77 percent of all reports would be prepared, transmitted, and recorded electronically at full implementation. The implementation rates of facilities, however, will vary depending on the degree to which the facility implements electronic reporting for environmental requirements directly with EPA or with State regulatory agencies managing EPA-delegated/authorized environmental programs. The rates are also affected by the method (Web, EDI, or XML) the facility chooses to use in reporting to EPA or the delegated State agency. The table below describes the implementation rates for facilities under the scenarios described. The table also presents the current “As-Is” rates of paper or diskette exchange and the impacts of electronic reporting on these rates over an eight year period.

Facility Implementation Rates by Reporting Method (In Percentages)

In preparing this analysis, EPA chose to be conservative in assigning implementation rates and

Summary As-Is Versus To-Be Costs and Cumulative Savings (\$M) In FY 2000 Dollars

Cost	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07
<i>As-Is costs</i>								
Facilities	3,863.0	3,883.7	3,775.0	3,669.2	3,566.1	3,444.1	3,369.2	3,274.7
States	58.7	59.0	57.4	55.8	54.2	52.7	51.2	49.8
EPA	25.8	26.9	26.9	27.1	27.2	27.4	27.5	27.6
<i>To-Be costs</i>								
Facilities	3,863.0	3,883.7	3,771.3	3,629.4	3,520.8	3,357.7	3,278.7	3,197.8
States	58.7	59.0	42.3	40.1	38.4	37.5	36.2	35.0
EPA	28.4	30.7	42.3	26.9	21.5	19.6	19.3	18.4
Difference	(2.6)	(3.9)	3.5	55.6	66.8	109.3	113.8	101.0

used technology costs based on the current year. The costs of implementing facilities will vary widely depending on the electronic submission approach. Companies choosing to submit using web forms will have much lower initial investment costs, but will receive less savings than companies that choose to automate their systems to generate EDI or XML file submissions to EPA. In the latter case, EPA assumes that costs associated with the implementation of EDI or XML will result from companies configuring existing XML or EDI software to EPA prescribed formats, and companies will tend not to invest in EDI hardware or software for the singular purpose of submitting data to EPA. If the electronic commerce industry trends continue, the costs of implementing technologies will decline and the number of facilities and states implementing electronic reporting will increase, thereby increasing the overall net benefits of the rule. EPA is also continuing to research electronic record-keeping options that will improve the cost effectiveness of electronic record-keeping while meeting federal enforcement requirements. EPA is seeking comment from reviewers on alternative record keeping approaches and on EPA's assumption that facilities choosing to submit data via XML or EDI to EPA will not acquire new hardware or software.

2. Qualitative Implications. In addition to the cost savings identified through implementation of this proposal, EPA also has identified a number of qualitative benefits through implementation of an electronic system. These qualitative benefits of electronic reporting include: enhanced quality of data received and entered into our systems, faster public access to data submitted to EPA, better tracking of compliance submissions by industry and government agencies, and opportunities for re-engineering current paper processes. *EPA's Cross Media Electronic Reporting and Record-keeping Rule Cost Benefit Analysis* describes the qualitative aspects in more detail.

V. THE CENTRAL DATA EXCHANGE (CDX)

A. What is EPA's concept of the CDX?

EPA's Office of Environmental Information (OEI) is currently developing the specifications for

a ‘central data exchange’ that will serve as EPA’s primary gateway for electronic documents received by EPA. As noted in section I.B of this preamble, CDX is being designed with the goal of fully satisfying the criteria that this proposal specifies for assessing State or tribal electronic document receiving systems; similarly, EPA will ensure that other systems the Administrator designates to receive electronic submissions satisfy the criteria as well. With respect to the electronic document submission process and criteria addressed by today’s proposal, we intend CDX functions to include:

1. *access management* – allowing or denying an entity access to CDX;
2. *data interchange* – accepting and returning data via various of file transfer mechanisms;
3. *signature/certification management* – providing devices and required scenarios for individuals to sign and certify what they submit;
4. *submitter and data authentication* – assuring that electronic signatures are valid and data is uncorrupted;
5. *transaction logging* – providing date, time, and source information for data received to establish ‘chain of custody’;
6. *acknowledgment and provision of copy of record* – providing the submitter with confirmations of the data received;
7. *archiving* – placing files received and transmission logs into secure, long-term storage;
8. *error-checking* – flagging obvious errors in documents and document transactions, including duplicate documents and unauthorized submissions;
9. *translation and forwarding* – converting submitted documents into formats that will load to EPA databases, and forwarding them to the appropriate systems;
10. *outreach* – providing education and other customer services (such as user manuals, help desk) to CDX users.

The idea is to eventually provide – to the greatest extent possible – one way and one place for the regulated community to exchange electronic documents with EPA. States may also choose to use CDX as a gateway for electronic data submissions from their regulated community, as a cost-effective alternative to building their own system. EPA is exploring opportunities to leverage CDX resources for use by authorized/approved state programs. CDX may also provide the platform for State-EPA data exchanges that implement administrative arrangements for data sharing. However, as with the provisions of the proposed rule, the features and functions of CDX described in this Section will generally be inapplicable to these State-EPA exchanges.

With respect to EPA’s electronic transactions with regulated entities, our hope is that the uniformity of process and technology that CDX provides will help both EPA and regulated entities realize economies of scale from their investments in data exchange technologies. This is not to say that use of CDX to submit electronic documents will necessarily involve substantial investment; it will require little more of a submitter than access to a computer with a browser and an Internet connection. However, for organizations that have invested heavily in the computerized management of their

environmental data, CDX is also being designed to support substantial automation of the data transfer processes. In addition, EPA hopes that CDX's centralization of data exchange will eventually provide the platform for greater integration or consolidation of environmental reporting.

B. What are the CDX building blocks?

To support its various functions, we are designing CDX to incorporate a number of key building blocks, including:

11. digital signatures based on public key infrastructure (PKI),
12. a process for registering users and managing their access to the CDX,
13. a characteristic systems architecture,
14. electronic data interchange (EDI) standards, and
15. a characteristic environment in which electronic reporting transactions will be conducted.

These building blocks – as explained in detail in the following sections – are meant to ensure that CDX can perform the functions of an electronic document receiving system under the proposed rule. EPA believes that these building blocks, taken together, will satisfy the criteria in today's proposal for electronic document receiving systems, but seeks comment on this general question.

1. Public Key Infrastructure (PKI)-based digital signatures

PKI-based digital signatures are the product of two concepts:

1. “asymmetric” cryptography, and
2. an institutional framework for “certifying” the identity of a signature-holder, provided by PKI.

Taking these in order, “asymmetric” cryptography is based on a mathematical relationship that exists between certain pairs of numbers, for example number A and number B, such that

3. if A is used to encrypt some message, B and only B can decipher it, and
4. if B deciphers the message, it can only have been encrypted with A.

For purposes of a digital signature, then, A and B are uniquely assigned to individual X. (How this works is described below, in connection with explaining the ‘institutional framework’ provided by PKI.) One of the numbers, say A, submitter X shares with no-one. This is X's “private key”. The other, B, is X's “public key”, and X shares B with anyone to whom X wishes to send a message – X may even publish B together with information that identifies him/her as X. Given his two keys, X then signs an electronic document as follows: 1) X uses a standard formula or algorithm to produce a

number uniquely related to the content of the electronic document. This is referred to as the ‘message digest’ or ‘hash’ of the document. 2) X uses A, the private key, to encrypt this hash; this encrypted hash is X’s *digital signature*, and it is unique both to X and to the particular message it signs. 3) X attaches this digital signature to his/her message (which is otherwise not encrypted), and sends it.

When Y gets X’s message, Y validates X’s signature by: 1) deriving the hash of the message, using the same standard algorithm that X used; 2) deciphering X’s digital signature, using X’s public key, B; and 3) comparing the hash Y derived (in step 1) with the deciphered signature. The two numbers – the derived hash and the deciphered signature -- should agree. If (and only if) they do, then Y knows both that the signature was produced using A (which belongs to X), and that the message has not changed since X signed it.

Because the digital signature is specific to the particular document, and is unique in each case, to say that X is a ‘signature-holder’ in this context is to refer to A and B, the private/public key-pair. The A/B key-pair does belong to X and plays the same role in each of the many digital signatures X may create through the process described above. Accordingly, it is this key-pair – rather than the individual signatures they are used to create – that is associated with the process of certifying a signature-holder’s identity that is provided by PKI.

Turning to this, PKI is a way of reliably establishing and maintaining the identity of the individual associated with a given key-pair used in producing digital signatures. This protocol involves the issuance of a “PKI certificate” by a “trusted” “certificate authority” (CA). The CA is “trusted” in the sense that it operates in conformance with an appropriate certificate policy, and has demonstrated this conformance through its operations across a wide range of electronic commerce applications.

Issuing a certificate for individual X typically involves the following steps: 1) X applies to the CA for a certificate; 2) the CA requests various pieces of personal information from X, and/or notarized verifications of X’s personal information, and/or X to appear in person, to provide the CA with the bases for “proving” X’s identity; 3) the CA provides X with a way to generate his unique key pair; 4) the CA conducts the “identity proofing” process – matching what X has provided against information about X in various commercial databases, official documents, etc.; 5) when the “identity proofing” is successfully completed, the CA creates a “certificate” for X that incorporates his public key, along with various pieces of identifying information about X; 6) the CA digitally signs the certificate to certify its authenticity, and makes it available to users through directory services. Some of these steps – especially the “identity proofing” process – may vary considerably, depending on requirements for security/certainty and the policies and practices of the particular CA. In the approach that EPA is currently planning, certificate issuance will be incorporated into a broader CDX registration process. The discussion of registration in the next section will include some of the proposed specifics of “identity proofing” and related steps for CDX purposes.

The use of PKI-based digital signatures is itself supported by a very robust infrastructure of

electronic commerce tools and practices, private- and public-sector policies and standards, as well as a very large and growing body of theoretical research into the mathematical foundations for this approach. Within the federal government, the importance of PKI is recognized not only by the ACES initiative (discussed below), but also by a standing ‘Federal PKI Steering Committee’ with the mandate to promote and coordinate the adoption of PKI-based digital signatures for a broad range of applications across all federal agencies. In addition, federal agencies may rely on security and PKI technical requirements published in the Federal Information Processing Standards (FIPS) developed by the National Institute of Standards and Technology, available at <http://csrc.nist.gov/fips/>.

2. The CDX registration process

Under the system EPA is designing, to submit electronic documents to EPA you must first register with CDX, and – at least at the outset – registration will be by invitation from EPA. Generally, as CDX is readied to receive a specified report, EPA will extend registration invitations to all individuals who currently submit that report to EPA on behalf of their organizations, and are identified as having this responsibility in EPA’s Facility Registry System (FRS) database. If you have this responsibility but do not receive an invitation, you will have the opportunity to notify EPA and put yourself on our invitation list. However, if you submit the specified report to an State, tribal or local agency, you will not receive a CDX invitation, since your reporting transaction would be with that agency’s electronic document receiving system, and not with CDX.

If you decide to accept an invitation to report electronically, you will go through a registration process that involves three steps:

5. *invitation and verification,*
6. *certificate issuance, and*
7. *access and agreement.*

Taking these in order, EPA will initiate the process by sending you a letter, through the United States Postal Service. The letter will indicate the opportunity to report electronically, provide a CDX web-site address and access code, and invite you to start the registration process by logging on to the CDX site and verifying your name, address, organizational affiliation and area of reporting responsibility as posted on that site. This verification session will conclude by providing you with the web-site address for the Certificate Authority (CA) that will take you through step 2 of the process.

Of course, you may not have the responsibilities that the CDX site indicates. That is, you may not be the individual who signs and submits the environmental reports the site specifies on behalf of your company. In that case, you will be invited to indicate the individual(s) who do(es) have these responsibilities, and that will conclude your own interaction with CDX. EPA will then update FRS, and issue new invitation letter(s) to the correct individual(s). Assuming you are the correct individual, step 1 may in some cases involve EPA asking for a letter from a responsible company official, on company

letterhead, confirming that you have the responsibility to sign and submit the environmental reports in question. Finally, as a part of step 1 you may also be prompted to nominate one or two individuals as ‘alternate’ submitters, to receive their own invitations to register and, via step 2, to obtain their own PKI certificates. EPA is considering this provision for ‘alternates’ so that there will always be someone at the facility available to sign electronic submissions with their own private key, in case you –as the primary submitter – are unavailable during a period when a document is due. EPA seeks comment on the value of the confirming letter, and of providing for these ‘alternates’, and on whether these would impose any unacceptable costs or burdens on regulated entities.

Moving on to step 2, certificate issuance will largely be in the hands of the certificate authority (CA). EPA’s current plan is to secure CA services through the General Service Administration’s (GSA) Access Certificates for Electronic Services (ACES) program. Under ACES, EPA will contract with one of the ACES vendors to issue and manage certificates for individuals wishing to submit electronic reports to CDX. More information on ACES is available at the ACES website: www.gsa.gov/aces.

Assuming the ACES approach, then, issuance of your certificate will consist of a sequence of events similar to the following:

8. You log onto the ACES CA’s web-site, using the address provided at the end of step 1, and the access code provided in the initial invitation letter;
9. You provide personal and business information that may include some of the following items – your name, home address, e-mail address, social security number, telephone number, credit card number, driver’s license information, employer’s address, common name of your employer, legal company name of your employer, name and telephone number of your direct manager, and name and telephone number of a human resource contact;
10. During this initial ACES CA session, the CA will also enable you to generate – on your own computer – a public and private key pair, and your public key would automatically be included in your certificate request;
11. The CA will use your personal and business information to conduct the identity-proofing process; this takes approximately three days;
12. After the CA validates your identity, you will receive letter via the US Postal Service notifying you that your certificate is ready; notification will include a PIN for access to the certificate retrieval website;
13. You may be asked to return to the ACES CA web site to confirm the receipt of your certificate and acknowledge that you have read and agree to abide by the conditions of your new EPA-sponsored certificate;
14. You will download the certificate to your browser, the CA notifies CDX that you have received your certificate, and CDX initiates step 3.

Under the ACES approach, the personal information you supply for purposes of “identity proofing” must include at least three items, and at least one of these must be something assigned to you based on an in-person identity verification process, e.g. a passport number or driver’s license number. In addition, because your identity as an official of a regulated company is central to your relationship with EPA, the “identity proofing” performed by the CA may also include verification of your company’s identity, including address, legal name, names of directors and officers, and current operating status. EPA seeks comment on any aspect of this “identity proofing” approach, and specifically on the need to have the CA collect the personal and business information listed above, as well as any comment on the ACES certificate issuance process as a whole.

It is worth stressing that the items of personal information selected for “identity proofing” will be submitted to the CA, and not to EPA, and this personal information will not be available to or maintained by EPA. However, some basic personal information – specifically, your name, your contact information (email address, phone/fax/mobile/pages numbers), your mailing address and your organizational role (e.g., consultant, environmental manager, etc.) may be submitted to (or verified as correct by) EPA as a part of step 1 of the registration process, preceding ACES certificate issuance. Step 1 may also involve EPA’s collecting or verifying some of the business-related items that can also be associated ACES “identity proofing” – specifically, your employer’s address, common name of your employer, legal company name of your employer, name and telephone number of your direct manager – plus, possibly, the following additional items of information: facility name and address, EPA program reporting area (e.g. Hazardous Waste, NPDES, etc.), EPA program or permit identification number, and preferred method of electronic reporting (e.g., web form, EDI, etc.). EPA seeks comment on the need to collect/verify these items of personal and business-related information as a part of step 1 of the registration process.

In step 3, CDX will create a system account for you, including a controlled-access mailbox, sending you by regular mail the password and user identification code to gain access to your account. When you initially use these to access your account, you will be instructed to download any client desktop software from CDX that may serve to support the digital signing of your electronic submissions. You will conclude the registration process by printing out and signing on paper a registration agreement included with the downloaded software. The agreement will affirm your understanding that, among other things:

15. digital signature/certification has the full legal force of a corresponding signature created with wet ink on paper;
16. you must protect the access to your CDX mailbox, to your client CDX desktop, and to the private key used to create your digital signature;
17. you must never delegate the use of your private key, or provide anyone else access to it in any other way;
18. you must immediately notify EPA if you have any reason to suspect that your CDX mailbox, CDX-supplied client software, or private key has been compromised

The full agreement would conform closely to the text suggested in subsection IV.D.3 of this preamble.

Upon receiving this agreement, with wet-ink-on-paper signature, CDX will recognize you as a fully-registered and authorized user. As proposed in today's rule, CDX will require a process for you to renew your registration, probably once every two years, although – corresponding to the discussion in Section IV.D.3 of this preamble – EPA seeks comment on less frequent renewals, for example, at intervals of 3, 4, or 5 years. This will include certifying that you have complied with the terms of your initial registration agreement, and, in particular, that you have not in any way compromised or delegated access to your private key, to your private CDX account, or to your CDX client software, and that you have no other evidence that any of these items have been compromised. Again, the full text of this agreement would conform closely to the text suggested for agreement renewal in Section IV.D.3 of this preamble. This certification will probably be printed out by your desktop software, require a wet-ink-on-paper signature, and be submitted through the United States Postal Service. Failure to submit this certification would terminate your access to CDX, and could lead EPA to require supplemental certification of previous submissions. The EPA is seeking comment on this proposed approach to registration renewal, the requirement that the agreement be renewed, and the frequency of the renewal. We are also seeking comment on whether it could be accomplished via an electronic submission rather than on paper.

3. The CDX architecture

In designing the CDX architecture, EPA has been guided by three goals:

19. *flexibility in exchanging data* – that is, the ability to support a number of different data exchange mechanisms, including batch file transfers in various formats, web-based file uploads, as well as on-line data entry;
20. *uniformity in signing/certifying submissions* – that is, providing for a uniform way for individuals to sign and certify their electronic documents, no matter how the data they contain was transferred; and
21. *adequate security for all aspects of CDX operation* – that is, the assurance that authorized users of CDX, including EPA, retain control over the CDX operations for which they are responsible.

The goal of *flexibility* arises from knowledge that the organizations that might want to submit electronic documents to CDX apply information technology to environmental management many different ways. At the one extreme may be large companies that have correspondingly large quantities of data to submit – data that they maintain in databases and would prefer transfer in as automated a mode as possible. At the other extreme are small businesses that may be equipped to enter their data into some sort of user-friendly 'smart' form – on-line or off-line – but would not otherwise computerize their environmental data. And, in the middle, are organizations that may use relatively simple database

or spreadsheet tools for their environmental data, but are not prepared to automate a data transfer process. In designing CDX, EPA is trying to accommodate all of these varying levels of computerization – providing organizations with modes of data transfer that fit their capabilities while allowing them to take advantage of whatever level of data capture and automation they have already achieved.

While organizations may differ considerably in how they want and are able to transfer data, there needs to be a consistent approach for the responsible company official's review and certification – by signing – to the truth and accuracy of the data transferred. In all cases this will be accomplished by a human interaction with the medium in which the data is displayed, and some human action to create the signature in that medium. For any case that calls for a signature, CDX will always provide the same *uniform* set of procedures for reviewing the data and creating the signature.

The CDX will also be designed to provide the requisite system security. Obviously, the CDX must involve protection for the data that CDX receives and maintains from any unwanted intrusion or tampering. It must also protect the data as it travels from the submitter to the CDX. The system security must also include elements that ensure that the signature/certification process is not compromised. For example, CDX must provide certificate holders with a way to secure their private key and to control access to any messages that confirm or respond to submissions, so that they can be assured that no spurious transactions with CDX will be conducted using their electronic signature.

To achieve these goals, EPA is planning to base CDX implementation on client-server architecture. This means that CDX will manage the transactions with submitters through a computer operated by EPA that interacts with computers at the submitter's site. To provide for the desired flexibility, the EPA server is being designed to accept data via a variety of transfer mechanisms in variety of formats, ranging from Internet File Transfer Protocol (FTP) submissions of spread-sheet files to standards-based electronic data interchange (EDI) transmissions via private value-added network (VAN). These file formats and transfer protocols will be discussed below.

To ensure a uniform signature/certification process, CDX would provide the computers from which it accepts electronic documents (otherwise known as "client" personal computers (PCs)) with copy-protected and password-protected client software that will support the digital signing of your electronic documents. You will be prompted to download and install this software once you complete the registration/certification process, and access your password-protected mailbox on the CDX server. (You would also be given a detailed user's guide, which will provide step-by-step instructions on download and installation.).

To operate this CDX client software, and interact with the CDX server, your PC system will have to have: Internet access; at least a 486 processor (with Pentium recommended); 2 to 5 MB of available hard-drive space to install program software; access to a printer; and Microsoft Windows 95, 98 or NT 4.0. Given the planned use of digital signature certificates, your system will also be required

to run one of the following Web browsers: Internet Explorer 4.01, Internet Explorer 5.0, Netscape 3 - 4.05, Netscape 4, or subsequent versions of these browsers. In addition, you should have backup capability of some form (e.g. tape system, off-line disk storage, or access to a separate network server.); an effective backup program provides protection against system malfunctions and ensures that you can retain a copy of your submissions as required by EPA regulations. EPA seeks comment on whether these system requirements impose unacceptable costs or burdens on regulated entities, and whether additional processors and operating systems should be accommodated.

Concerning protection of the server, CDX will be designed to incorporate "firewall" security, in addition to the usual system security provisions to control physical access to the system and prohibit unauthorized internal access. Very generally, a "firewall" is software that controls the flow of data files between a system and a network to which it is connected, to ensure (among other things) that only files from recognized and safe sources are allowed to enter. As transmissions flow through the CDX firewall, for example, they will be automatically virus-scanned, and the system would not attempt to process a file that contains a suspected virus. (If a virus is detected, the submitter would be notified and asked to resubmit the report.) The server will also be protected with intrusion detection software that alerts the system operators to suspected attempts to penetrate or "hack" the system. The system operators will use the logging capability of the firewall and the intrusion detection system to monitor the health and status of the system and respond to unauthorized efforts to use or modify the system. In terms of protecting the system clock, CDX will be configured so that changes to the clock can only be made under a single user ID and password, and the server will be placed in a locked rack so that an unauthorized person cannot use a reboot sequence to change the clock settings. In addition, the system clock will be synchronized with the atomic clock at least once a day to ensure that the system time is extremely accurate.

Once a submission passes through the firewall, CDX will initiate the first of several processes that, among other things, will create a robust archive of the original submission, including:

22. the submission files in their entirety, exactly as they were sent, including any enveloping/addressing/routing/date-time information. These will be captured and archived upon receipt by CDX, immediately after a successful virus scan; archiving will include a digital signing of the files by EPA to ensure file integrity;
23. the electronic document as it was signed with its submitter digital signature affixed; these will be captured after the digital signatures are verified, and will include data generated by the verification process;
24. the electronic document as it was signed, with the verified digital signature affixed, the date and time of receipt and EPA's digital signature of the entire content; this will constitute the "copy of record";
25. the submission acknowledgments sent back to the submitter with EPA signatures, including the data and time these are transmitted.

If, at a later date, there is a question about the file that was received, the EPA can use this sequence of archived files to verify that no changes have been made to the original input from the submitter. Of course, we believe the fact that these archived files are digitally signed will make it impossible for any of these files to be modified without detection. As noted earlier, a digital signature is a function of the “message digest” or “hash” of the document or file it is used to sign. Any modification to the file would change its “hash” – which will be different for each variation of the file – and this would automatically invalidate the signature. A change in even a single character of a file or document would invalidate its digital signature, and would trigger an error warning when processed by the CDX server.

In terms of archive storage, the CDX will archive to multiple formats: hard disk, tape, and optical media. This use of multiple formats is designed to ensure that degradation of one format would not jeopardize EPA's long-term storage capability for submitted data. The CDX archives will be written out to an online disk system when they are first created. They will be copied to an off-line disk system and also backed up to magnetic tape every day, with full backups to tape on a weekly basis. The schedule for backup to optical media – and the requirements for rapidity of retrieval – have not yet been decided, and EPA welcomes any suggestions in this area. The optical media archiving is intended to provide for long-term storage, extending to periods of 20-50 years.

Finally, CDX will also provide security for data exchanges. To protect client-server transactions, including the report submission and transmission of acknowledgments, CDX will use a protocol that encrypts the files being exchanged between a “client” PC and the CDX server while these files travel through the network. In addition, the private key, as already noted, will be password protected; it will also provide separate password protection of access to the private key that generates the digital signature. To further protect a user's account from theft or spurious use by an intruder across a company network, current planning calls for the CDX client software to be “localized” to the particular PC on which it is installed – preventing access to this software installed on a particular PC from other PCs connected to it via a network. It is worth adding that, when the private key is created – in connection with the registration process – this can be done in a way that prohibits its export. If this option is invoked, the private key can never be moved – whether to a floppy or to another computer – so if a signature-holder had to move to another machine, the existing public/private key pair assigned to this individual will have to be abandoned, and he or she will have to apply for a new certificate. While EPA is not currently planning to require this option, we are seeking comment both on whether it would involve too much burden for users and on whether the option is necessary to protect the private key from compromise.

4. Electronic Data Interchange (EDI) standards

As discussed in section IIA, above, EPA has, historically, based its approach to electronic reporting on EDI standards, specifically those developed and maintained under ANSI ASC X12. Today's proposal represents a departure from this approach, in that the regulatory language itself does not specify any particular data formats or transaction set standards. In addition, as already noted, the

system that EPA is proposing to use in implementing electronic reporting – the ‘Central Data Exchange’ – will not specify ANSI X12 standards as the only syntax for automated transfers of compliance data. Nonetheless, the EDI standards on which we have relied in the past will still serve to *define* many of the data sets that we expect CDX to accept from our submitters.

There are two reasons for this. The first is simply that a significant minority of very large company submitters conduct their electronic commerce using ANSI-based EDI; we want to be able to accommodate these companies and allow them to conduct their transactions with CDX using the same infrastructure they use in commerce. The second reason, is generally that ANSI standards continue to provide a precise, well-documented and widely-recognized way of describing the structure of electronic transactions – including the elements of data involved and how they are related to each other. By providing this clarity, these standards-based descriptions facilitate the implementation of an electronic transfer even where ANSI X12 is replaced by another format for the data files – that is, another way of ordering, grouping, labeling and separating the elements of data. In addition, many of the commercial off-the-shell (COTS) electronic commerce products can translate X12 syntax into other formats, such as “extended mark-up language” (XML).

CDX will make EDI available for many, if not all, of the reports and other documents it is set up to receive. Beyond issues of configuring the CDX server software to recognize and process EDI-formatted files, implementation of EDI is largely a matter of developing the implementation guidance for each of the environmental reports to be supported. As noted in Section II.A of this preamble, the implementation guidance does three things. First, it addresses such procedural matters as: interactions with the communications network (which, under current plans, can be a ‘value-added network’ or ‘VAN’, but can also be the Internet), schedule for submissions and acknowledgments, transaction records to be maintained, and so on. Second, it stipulates the specific ANSI X12 standard file transmission formats – that is, “transaction sets” – to be used for the specified reports. Third, the guidance specifies how the stipulated transaction sets being used are to be interpreted as they are applied to the environmental report in question.

As noted in Section II.A, X12 transaction sets are generic in the sense that they typically leave a number of their components as ‘optional’, and use data-element specifications that are open to multiple interpretations. Therefore the implementation guidance must, at the very least, establish the correlation between the generic data elements and the specific data elements in the EPA report that would be put into this format – in essence, this is to specify which data field in the EPA report goes where in the transaction set format. This is sometimes described as *mapping* the generic transaction set to the particular set of data elements it will serve to format. The result of this “mapping” process is often referred to as the “implementation convention” (IC) of the transaction set for the report or document in question. Accordingly, each EPA program-specific implementation guidance will include the applicable ICs.

EPA has written and codified ICs for many of the Agency’s major compliance reports, and

several more are under development. These ICs have been (or will be) approved as a ‘Federal Implementation Convention’. This approval process, which involves public notice and comment, is managed by the Federal Electronic Data Interchange Standards Management Coordinating Committee (FESMCC), under the Federal Information Processing Standard Publication (FIPS PUB) 161-2, entitled “Electronic Data Interchange.” All approved Federal IC’s are registered with the National Institute of Standards and Technology (NIST). The NIST registry, now including 863E, is posted at: <http://snad.ncsl.nist.gov/fededi/>. Whenever EPA intends to upgrade to a new version or release of the ANSI X12 standards, or in any other way modify the applicable IC, EPA will give notice of its intent in the Federal Register and will establish a conversion date. Affected regulated entities will then have a minimum of sixty (60) calendar days from the conversion date to conform to the modified IC; EPA will discontinue support of the previous version of the IC no sooner than ninety (90) calendar days after the conversion date.

The full list of currently approved ICs is:

26. 863E - Report of Test Results (Discharge Monitoring Report): This IC is available in [PDF](#), [RTF](#), [ASCII](#), [SEF](#) formats for Version 4010 from <http://snad.ncsl.nist.gov/dartg/edi/4010-ic.html>
27. The 863S - Report of Test Results (Safe Drinking Water) IC is currently in the FESMCC approval process. When approved, it will be available in [PDF](#), [RTF](#), [ASCII](#), [SEF](#) formats for Version 4010.

In addition, ANSI ASC X12 has recently approved a new transaction set specifically developed by EPA to support environmental reporting, the 179. The 179 consolidates several EPA reports into a single transaction set. The 179 can convey a Discharge Monitoring Report, Hazardous Waste Report, Toxic Release Inventory report, the Air Emission Inventory report, or Risk Management Plan. The 179 was published initially in the ANSI ASC Version 4031. The ICs for the 179 are being developed and will be coordinated through the FESMCC process and published on the NIST web site after approval.

5. The transaction environment

As explained in earlier sections, CDX would allow submitters to transmit data either through automated file transfer, or via on-screen “smart forms” provided as a part of the downloaded “desktop”. In either case, however, the signature/certification ‘scenario’ – that is, the series of steps surrounding the digital signing of the report – will be the same, consisting of:

5. *a data review sequence,*
6. *the signature process, and*
7. *an acknowledgment sequence.*

These steps will largely be governed by operation of the CDX software, and the interaction of the client PC with the CDX server.

Taking these in order, *data review* will take place online, with the CDX server providing the transmitted data for submitter review in a format that is easily read and understood, possibly with a visual layout similar to the applicable paper form (if there is one). The server will present the data one screen at a time – downloaded to the client browser – and it will not allow the submitter to initiate the signing process until the last screen has appeared. The review sequence will end when the submitter clicks a button at the bottom of the last data screen to initiate signature.

Once initiated, the *signature process* will first display the certification statement, certifying to the truth of the data to be submitted, and also including a warning that by initiating the signing process the submitter agrees that he or she is using the signature in compliance with the signature agreement that was signed when the signature device was issued. The exact content and wording of the first of these statements will be consistent with the language suggested for this purpose in sub-section IV.D.4 of this preamble. In any event, the submitter will be prompted to click agreement with this statement, after which the submitter will be prompted to enter his or her password launching the digital signature process. The digital signature will be created by using the submitter's private key to encrypt a 'hash' of all the elements of the screens the submitter has reviewed – including screen layout, data field labels, data elements, and certification statements. Once the signature is created and affixed, the signed report will be immediately transmitted to the server.

Transmission to the server will initiate the *acknowledgment sequence*. Upon receipt of the transmission, CDX will automatically create an acknowledgment that includes the date and time of receipt. This acknowledgment will be posted to the submitter's password-protected mailbox on the server, and/or to a submitter-specified email address. In addition, the server will also create a "copy of record" of the submission, by applying an EPA digital signature to the entire file received, including the submitter's digital signature. EPA will count this "copy of record" as the "original" of the submission for all legal purposes, and will maintain this electronic document in the CDX archive. As currently planned, this "copy of record" will be placed in the submitter's password-protected mailbox on the server. When the submitter next logs into CDX, the first screen he or she sees will present the list of copies of record (and acknowledgments, unless these are sent by email) that currently await submitter review; the submitter will be able to download and archive these documents. Of course, the submitter will be encouraged to review these copies of record to confirm that they correspond with what he or she intended to submit, and to notify EPA immediately in the case of any discrepancy.

In our design of this three-part scenario (data review, signature process, and acknowledgment), our major goals have been to make CDX simple, intuitive and easy for submitters to use, while – at the same time – ensuring that a submitter knows and understands what he or she is certifying, the meaning of affixing a digital signature to the electronic document, what has happened, and what EPA considers to be the document that was submitted. EPA seeks comment on the appropriateness of these goals

and whether more or less should be designed into CDX to ensure that it meets these goals.

VI. Regulatory Requirements

A. Executive Order 12866

"Pursuant to the terms of Executive Order 12866 (58 FR 51735, October 4, 1993), it has been determined that this rule is a "significant regulatory action" because it raises novel legal and /or policy issues. As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

B. Executive Order 13132

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

Under Section 6 of Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has federalism implications and that preempts State law, unless the Agency consults with State and local officials early in the process of developing the proposed regulation.

This proposed rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. The proposed rule would not require States to accept electronic reports. The effect of this rule would be to provide additional regulatory flexibility to States because States could choose to accept electronic data in satisfaction of EPA reporting requirements. Authorized States that did choose to accept electronic reports under this rule would incur expenses initially in developing systems or modifying existing systems to meet the criteria in this rule. However, the Cost/Benefit analysis associated with this proposed rule, summarized in section IV.E of this preamble, estimates that States' overall cost savings from implementing electronic reporting will more than compensate for these initial expenses. Additionally, EPA believes that even in the absence of this proposed rule, States' implementing electronic reporting on their own initiative would generally choose to meet the criteria that this rule proposes. Thus, the requirements of section 6 of the Executive Order do not apply to this rule.

Although section 6 of Executive Order 13132 does not apply to this rule, EPA did consult with State and local officials in developing this rule.

C. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act (PRA), 44 U.S.C. 3501 et seq. An Information Collection Request (ICR) document has been prepared by EPA (ICR No. 2002.01) and a copy may be obtained from Sandy Farmer by mail at Collection Strategies Division; U.S. Environmental Protection Agency (2822); 1200 Pennsylvania Ave., NW, Washington, DC 20460, by email at farmer.sandy@epamail.epa.gov, or by calling (202) 260-2740. A copy may also be downloaded off the Internet at <http://www.epa.gov/icr>.

The proposed rule would allow reporting entities to voluntarily submit reports and other information electronically, thereby streamlining and expediting the process for reporting. It will also allow facilities to maintain electronic records for information/data currently required by regulation or statute to be maintained by the regulated entity onsite. EPA is proposing this rule on cross-media electronic reporting and record-keeping, in part, under the authority of the Government Paperwork Elimination Act, Public Law 105-277, which amends the PRA.

The CROMERRR ICR primarily covers the registration information which will be collected from individuals wishing to submit electronic reports on behalf of a regulated entity and will be used to establish the identity of that individual and the regulated entity he or she will represent. It also covers activities incidental to electronic reporting. Submission of reports in an electronic format will be voluntary.

The total annual reporting and record-keeping burden this ICR estimates for all facilities is 874,853 hours, which includes the tasks of collecting data, managing the system, and keeping records. A more detailed description of these activities includes the following: registering with EPA or State electronic document receiving systems, including invitation, verification, certificate issuance, and access and agreement; renewing registration with the electronic document receiving system once every two years; activities related to maintaining the electronic signature, including renewing the signature certificate, reporting loss, theft, or other compromise of any component of an electronic signature, and surrender of electronic signature; and facility electronic record-keeping, including generating and maintaining complete e-records and documents. It is expected that tasks associated with system registration will take an average of one (1) hour per registrant/entity and the estimated number of likely respondents is 324,370. For the first year, there will be start-up and annual operation and maintenance (O&M) costs. Costs for the following two years will only involve annual O&M, based on the assumption that the registration will be valid for three years. Total annual start-up costs are estimated at \$10,700,000.00 and annual O&M costs are estimated at \$5,100,123.96.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15.

Comments are requested on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques. Send comments on the ICR to the Director, Collection Strategies Division; U.S. Environmental Protection Agency (2822); 1200 Pennsylvania Ave., NW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th St., N.W., Washington, DC 20503, marked "Attention: Desk Officer for EPA." Include the ICR number in any correspondence. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after [Insert date of publication in the FEDERAL REGISTER], a comment to OMB is best assured of having its full effect if OMB receives it by [Insert date 30 days after publication in the FEDERAL REGISTER]. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

D. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA), 5 U.S.C. 601 et seq., provides that, whenever an agency promulgates a proposed rule under section 553 of the Administrative Procedures Act, after being required by that section or any other law to publish a general notice of rulemaking, the agency generally must prepare an initial regulatory flexibility analysis (IRFA). The agency must prepare a Final Regulatory Flexibility Analysis (FRFA) for a final rule unless the head of the agency certifies that it will not have a significant economic impact on a substantial number of small entities.

Today's rule is not subject to the RFA because electronic reporting and record-keeping is voluntary and will only apply to those States and tribes that seek EPA approval to allow electronic reporting and record-keeping under their authorized programs and to regulated entities that seek to maintain records or transmit compliance reports electronically to EPA or authorized/approved States or tribes. These changes will reduce the burden on all affected entities, including small businesses. Accordingly, this rule is certified as having no Significant economic impact on a substantial number of small businesses. Respondent burden is the burden placed upon each individual reporting entity

involved in set up, configuration and implementation of electronic submission of environmental compliance reports. Regulated entities will find that the initial set up process requires some expenditure of time and resources, but in the long run, this process will reduce the time spent on submissions each year. The Cost/Benefit analysis associated with this proposed rule, summarized in section IV.E, estimates that electronic reporting and record-keeping, when fully implemented, will reduce regulated facility compliance cost by more than \$300 million per year. The Administrator therefore certifies, pursuant to section 605(b) of the RFA, that this rule will not have a significant economic impact on a substantial number of small entities.

E. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of \$100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted.

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small-government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

The Agency has determined that this rule does not contain a Federal mandate that may result in expenditures of \$100 million or more for State, local and tribal governments, in the aggregate, or the private sector in any one year. Today's rule provides additional flexibility to the States in complying with current regulatory requirements and reduces the burden on affected governments. Thus, today's rule is not subject to the requirements in sections 202 and 205 of the UMRA.

The Agency has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments and thus this rule is not subject to the requirements in section 203 of UMRA. This rule will not significantly affect small governments because it provides

additional flexibility in complying with pre-existing regulatory requirements.

F. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law 104-113, section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This rulemaking involves information technology standards for electronic formats and for electronic signatures. EPA is exploring a number of standards-based approaches to Web forms, including electronic data exchange formats based upon the American National Standards Institute (ANSI) Accredited Standards Committee's (ASC) X12 for Electronic Data Interchange or EDI. EPA is also proposing Internet data exchange formats based on the Extensible Mark-up Language (XML) specifications developed by the World Wide Web Consortium (W3C). The World Wide Web Consortium, however, is not a voluntary consensus standards body within the meaning of the NTTAA, and EPA could not identify an applicable consensus standard for creating and transmitting data using XML. Therefore, EPA has decided to propose an XML data exchange format, referred to as a document type definition for Internet transmissions as an alternative to the ANSI ASC X12 formats that are customarily transmitted across Value Added Networks. It is possible that the ANSI ASC X12 standards body will develop standards for XML document definitions in the future, and EPA will monitor this situation as we develop a final rulemaking.

G. Executive Order 13045

The Executive order, Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885, April 23, 1997) applies to any rule that EPA determines (1) "economically significant" as defined under Executive Order 12866 and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. EPA interprets the Executive Order 13045 as encompassing only those regulatory actions that are risk-based or health-based, such that the analysis required under section 5-501 of the Executive Order has the potential to influence the regulation.

This rule is not subject to Executive Order 13045 because it is not an economically significant action as defined by Executive Order 12866 and it does not involve decisions regarding environmental health or safety risks. This rule develops technical procedures for the voluntary submission of environmental compliance data electronically.

H. Executive Order 13175

Executive Order 13175, entitled, “A Consultation and Coordination with Indian Tribal Governments” (65 FR 67249, November 6, 2000), requires EPA to develop an accountable process to ensure “meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.” “Policies that have tribal implications” is defined in the Executive Order to include regulations that have “substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes.”

This proposed rule does not have tribal implications. It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. The proposed rule would not require Indian tribes to accept electronic reports. The effect of this rule would be to provide additional regulatory flexibility to Indian tribes because tribes could choose to accept electronic data in satisfaction of EPA reporting requirements. Authorized tribal programs that did choose to accept electronic reports under this rule would incur expenses initially in developing systems or modifying existing systems to meet the criteria in this rule. However, the Cost/Benefit analysis associated with this proposed rule, summarized in section IV.E of this preamble, estimates that tribes’ overall cost savings from implementing electronic reporting will more than compensate for these initial expenses. Additionally, EPA believes that even in the absence of this proposed rule, Indian tribes’ implementing electronic reporting on their own initiative would generally choose to meet the criteria that this rule proposes. Thus, Executive Order 13175 does not apply to this rule. In the spirit of Executive Order 13175, and consistent with EPA policy to promote communications between EPA and tribal governments, EPA specifically solicits additional comment on this proposed rule from tribal officials.

List of Subjects

40 CFR Part 3

Electronic Reporting and record-keeping requirements, electronic reports, electronic records, intergovernmental relations.

40 CFR Part 51

Environmental protection, Administrative practice and procedure, Air pollution control, Carbon monoxide, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and record-keeping requirements, Sulfur oxides, Volatile organic compounds, Electronic Reporting and record-keeping requirements, electronic reports, electronic records.

40 CFR Part 60

Environmental protection, Administrative practice and procedure, Air pollution control, Intergovernmental relations, Reporting and record-keeping requirements, Electronic Reporting and record-keeping requirements, electronic reports, electronic records.

40 CFR Part 63

Environmental protection, Air pollution control, Hazardous substances, Reporting and record-keeping requirements, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records, Intergovernmental relations.

40 CFR Part 70

Environmental protection, Administrative practice and procedure, Intergovernmental relations, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records.

40 CFR Part 123

Environmental protection, Administrative practice and procedure, Confidential business information, Hazardous substances, Indians-lands, Intergovernmental relations, Penalties, Reporting and record-keeping requirements, Water pollution control, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records.

40 CFR Part 142

Environmental protection, Administrative practice and procedure, Chemicals, Indians-lands, Radiation protection, Reporting and record-keeping requirements, Water supply, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records, Intergovernmental relations.

40 CFR Part 145

Environmental protection, Confidential business information, Indians-lands, Intergovernmental relations, Penalties, Reporting and record-keeping requirements, Water supply, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records.

40 CFR Part 162

Environmental protection, Administrative practice and procedure, Reporting and record-keeping requirements, Pesticides and pests, State registration of pesticide products, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records, Intergovernmental relations.

40 CFR Part 233

Environmental protection, Administrative practice and procedure, Intergovernmental relations, Penalties, Reporting and record-keeping requirements, Water pollution control, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records.

40 CFR Part 257

Environmental protection, Waste treatment and disposal, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records, Intergovernmental relations.

40 CFR Part 258

Environmental protection, Reporting and record-keeping requirements, Waste treatment and disposal, Water pollution control, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records, Intergovernmental relations.

40 CFR Part 271

Environmental protection, Administrative practice and procedure, Confidential business information, Hazardous materials transportation, Hazardous waste, Indians-lands, Intergovernmental relations, Penalties, Reporting and record-keeping requirements, Water pollution control, Water supply, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records.

40 CFR Part 281

Environmental protection, Administrative practice and procedure, Hazardous substances, Insurance, Intergovernmental relations, Oil pollution, Reporting and record-keeping requirements, Surety bonds, Water pollution control, Water supply, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records.

40 CFR Part 403

Environmental protection, Confidential business information, Reporting and record-keeping requirements, Waste treatment and disposal, Water pollution control, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records, Intergovernmental relations.

40 CFR Part 501

Environmental protection, Administrative practice and procedure, Intergovernmental relations, Penalties, Reporting and record-keeping requirements, Sewage disposal, Electronic Reporting and

record-keeping requirements, Electronic reports, Electronic records.

40 CFR Part 745

Environmental protection, Hazardous substances, Lead poisoning, Reporting and record-keeping requirements, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records, Intergovernmental relations.

40 CFR Part 763

Environmental protection, Administrative practice and procedure, Toxic substances, Asbestos, Hazardous substances, Imports, Reporting and record-keeping requirements, Electronic Reporting and record-keeping requirements, Electronic reports, Electronic records, Intergovernmental relations.

Dated: January 19, 2001

/s/

Carol M. Browner,
Administrator.

Therefore, it is proposed that title 40 chapter I of the Code of Federal Regulations be amended by adding a new part 3, and revising parts 51, 60, 63, 70, 123, 142, 145, 162, 233, 257, 258, 271, 281, 403, 501, 745, and 763 to read as follows:

PART 3 -- [NEW] ELECTRONIC REPORTING; ELECTRONIC RECORDS

Subpart A -- General Provisions

Sec.

- 3.1 Scope.
- 3.2 Implementation.
- 3.3 Definitions.
- 3.4 [Reserved].

Subpart B -- Electronic Reporting to EPA

Sec.

- 3.10 What are the requirements for acceptable electronic documents?
- 3.20 How will EPA provide notice of changes to the *Central Data Exchange*?
- 3.30 [Reserved].

Subpart C -- Electronic Record-keeping under EPA Programs

Sec.

- 3.100 What are the requirements for acceptable electronic records?.
- 3.200 [Reserved].

Subpart D -- Electronic Reporting and Record-keeping under EPA-Approved State Programs

Sec.

- 3.1000 How are authorized State, tribal or local environmental programs modified to allow electronic reporting?
- 3.2000 What are the criteria for acceptable electronic document receiving systems?
- 3.3000 How are authorized State, tribal or local environmental programs modified to allow electronic record-keeping?
- 3.4000 [Reserved].

Authority: 7 U.S.C. 136 to 136y; 15 U.S.C. 2601 to 2692; 33 U.S.C. 1251 to 1387; 33 U.S.C. 1401 to 1445; 33 U.S.C. 2701 to 2761; 42 U.S.C. 300f to 300j-26; 42 U.S.C. 6901-6992k; 42 U.S.C. 7401 to 7671q; 42 U.S.C. 9601 to 9675; 42 U.S.C. 11001 to 11050; 15 U.S.C. 7001; 44 U.S.C. 3504 to 3506.

Subpart A -- General Provisions

§ 3.1 Scope.

What is covered by this Part?

(a) This part sets forth the conditions under which EPA will accept the submission of electronic reports and other electronic documents, as well as the maintenance of electronic records, by regulated entities, as satisfying requirements under this Title to submit reports or other documents, or to keep records. This Part also sets forth the standards and process for EPA approval of changes to authorized State, tribal, and local environmental programs to allow electronic report or document submission or electronic record maintenance in satisfaction of requirements under such authorized programs. This Part does not require submission of electronic reports or documents or electronic record-keeping in lieu of paper. This Part confers no right or privilege to submit or maintain data electronically and does not obligate EPA, or State, tribal or local agencies to accept electronic data.

(b) Subpart C of this part applies to records in electronic form that are created, modified, maintained, archived, retrieved, or transmitted by regulated entities under any record-keeping requirements under this Title. However, Subpart C of this part does not provide for the conversion of existing paper documents or records into electronic form. Subpart C of this part also does not apply to the Agency's record-keeping requirements set forth in regulations governing contracts, grants, and financial management programs.

§ 3.2 Implementation.

What requirements may be satisfied by electronic reporting and electronic record-keeping?

(a) *Electronic reporting to EPA.* Any requirement in this Title that a document be created and transmitted or otherwise provided to EPA may be satisfied with an electronic document, in lieu of a paper document, provided that:

- (1) The electronic document satisfies the requirements of § 3.10; and
- (2) EPA has published a notice in the Federal Register announcing that EPA is prepared to receive in electronic form documents required or permitted by the named Part or Subpart of this Title.

(b) *Electronic record-keeping under EPA programs.* Except as provided under paragraph (d) of this section or excluded under § 3.1(b), any requirement in this Title that a record be maintained may be satisfied by maintaining an electronic record, in lieu of a paper record, provided that:

- (1) The electronic record satisfies the requirements of § 3.100; and
- (2) EPA has published a notice in the Federal Register announcing that EPA is prepared to recognize electronic records under the named Part or Subpart of this Title.

(c) *Electronic reporting and record-keeping under an EPA-authorized State, tribal, or local environmental program.* Except as provided under paragraph (d) of this section, any requirement under authorized State, tribal, or local environmental programs that reports or documents be submitted or records be maintained may be satisfied with electronic report or document submission,

or with electronic record maintenance, respectively, provided that: EPA has approved, in accordance with Subpart D of this part, the changes to the authorized State, tribal, or local environmental program to allow the electronic report or document submission or the electronic record maintenance in satisfaction of the authorized program requirement.

(d) *Limitation on the use of electronic records under EPA programs and EPA-authorized State, tribal, or local environmental programs.* Electronic records that meet the requirements of this Part may be used in lieu of paper records unless paper records are specifically required by other provisions in this Title that take effect on or after [date of promulgation of this regulation].

§ 3.3 Definitions.

What definitions are applicable to this part? The definitions set forth in this section apply when used in this part.

Acknowledgment means a confirmation of document receipt.

Administrator means the Administrator of the Environmental Protection Agency.

Agency means the Environmental Protection Agency or a State, tribal, local or other federal agency that administers a federal environmental program under this Title.

Agency electronic signature means an electronic signature of an individual who is authorized to sign an electronic document on an agency's behalf.

Authorized State, Tribal, or local environmental program means an environmental program which EPA has approved, authorized, or delegated to a State, tribe or local government to administer under a federal environmental program.

Communicate means to successfully and accurately convey a document, data, or information from one entity to another.

Electronic document means a document that is submitted to an agency or third-party as an electronic record, and communicated via a telecommunications network. For purposes of this Part, *electronic document* excludes documents submitted on such magnetic media as diskettes, compact disks or tapes; it also excludes facsimiles.

Electronic document receiving system means any set of apparatus, procedures, software, records or documentation used to receive electronic documents communicated to it via a telecommunications network.

Electronic record means any combination of text, graphics, data, audio, pictorial, or other information represented in digital form that is created, modified, maintained, archived, retrieved or distributed by a computer system.

Electronic record-retention system means any set of apparatus, procedures, software, records or documentation used to retain exact electronic copies of electronic records and electronic documents.

Electronic submission mechanism means any set of apparatus, procedures, software, records or documentation used to communicate an electronic document to an electronic document receiving system.

Electronic signature means any electronic record that is incorporated into (or appended to) an electronic document for the purpose of expressing the same meaning and intention that an individual's

handwritten signature would express if affixed in the same relation to the document's content presented on paper.

Electronic signature device means a code or other mechanism that is used to create electronic signatures. Where the *device* is used to create an individual's electronic signature, then the code or mechanism must uniquely belong to or be associated with or assigned to that individual. Where the *device* is used to create an organization's electronic signature, then the code or mechanism must uniquely belong to or be associated with or assigned to that organization.

EPA means the United States Environmental Protection Agency.

Handwritten signature means the scripted name or legal mark of an individual, handwritten by that individual with a writing or marking instrument such as a pen or stylus and executed or adopted with the present intention to authenticate a writing in a permanent form. The physical instance of the scripted name or mark so created constitutes the *handwritten signature*. The scripted name or legal mark, while conventionally applied to paper, may also be applied to other hard media.

Metadata means data that describes the properties of other data or collections of data (e.g., a database); with respect to a database or file containing data, metadata could include information about the database's structure, the date and time that data was created or added or changed, definitions of the data elements, descriptions of the accuracy of the data, etc.

Receive means to successfully acquire electronic documents in a format that can be processed by the receiving system.

Regulated entity means any entity that maintains records or submits documents to EPA to satisfy requirements under this Title, or that maintains records or submits documents to a State, tribal, or local agency to satisfy requirements under programs authorized under this Title. A State, tribal, or local agency or tribe may be a *regulated entity* where it maintains records or submits documents to satisfy requirements that apply to it under this Title (including regulations governing authorized State, tribal, or local programs); a State, tribal, or local agency will not be a *regulated entity* where it maintains records or submits documents exclusively for other purposes, for example as a part of administrative arrangements between States and EPA to share data.

Submit means to communicate a document so that it is received by the intended recipient.

Third-party system means an electronic document receiving system that is owned or operated by an entity that is neither a submitter of the electronic documents the system receives nor an agency to which these electronic documents are submitted.

§ 3.4 [Reserved].

Subpart B -- Electronic Reporting to EPA

§ 3.10 What are the requirements for acceptable electronic documents?

(a) An electronic document will satisfy a federal environmental reporting requirement or otherwise substitute for a paper submission permitted or required under this Title only if:

(1) The electronic document is submitted to an electronic document receiving system as provided under paragraph (b) of this section, and

(2) The electronic document bears valid electronic signatures, as provided in paragraphs (c), (d) and (e) of this section, to the same extent that the paper submission for which it substitutes would bear handwritten signatures.

(b) Electronic documents submitted to EPA to satisfy a federal environmental reporting requirement or otherwise substitute for a paper submission permitted or required by a federal environmental program must be submitted to either:

(1) EPA's *Central Data Exchange*; or

(2) Another EPA electronic document receiving system that the Administrator may designate for the receipt of specified submissions.

(c) An electronic signature is valid if and only if:

(1) The electronic signature is created by a person who is authorized to sign the document, with an electronic signature device that this person is authorized to use; and

(2) The electronic signature meets the validation requirements of the electronic document receiving system to which it is submitted.

(d) A valid electronic signature on any electronic document submitted to satisfy a federal or federally authorized State, tribal or local government environmental reporting requirement legally binds or obligates the signatory, or makes the signatory responsible, to the same extent as the signatory's hand-written signature on a paper document submitted to satisfy the same federal or federally authorized environmental reporting requirement.

(e) Proof that an individual's electronic signature was affixed to an electronic document is evidence, and may suffice to establish, that the individual who was issued that signature affixed the signature and did so with the intent to sign the electronic document to give it effect.

§ 3.20 How will EPA provide notice of changes to the *Central Data Exchange*?

(a) Except as provided under paragraph (b) of this section, whenever EPA plans to change *Central Data Exchange* hardware or software in ways that would affect the submission process:

(1) Where the equipment, software or services needed to submit electronic reports to the *Central Data Exchange* would be changed, EPA will provide public notice and seek comment on the proposed change at least a year in advance of the proposed implementation date;

(2) Otherwise, EPA will provide public notice at least sixty (60) days in advance of implementation.

(b) Any change which the Administrator determines is needed to ensure the security and integrity of the *Central Data Exchange* is exempt from the provisions of paragraph (a) of this section. However, to the extent consistent with ensuring the security and integrity of the system, EPA will provide public notice of any change to the *Central Data Exchange* made under the authority expressly reserved by this subsection.

§ 3.30 [Reserved].

Subpart C -- Electronic Record-keeping under EPA Programs

§ 3.100 What are the requirements for acceptable electronic records?

(a) An electronic record or electronic document will satisfy a record-keeping requirement of an EPA-administered federal environmental program under this Title only if it is generated and maintained by an acceptable electronic record-retention system as specified under this subsection. For purposes of maintaining electronic records that satisfy record-keeping requirements under this Title, an acceptable electronic record-retention system must:

(1) Generate and maintain accurate and complete electronic records and electronic documents in a form that may not be altered without detection;

(2) Maintain all electronic records and electronic documents without alteration for the entirety of the required period of record retention;

(3) Produce accurate and complete copies of any electronic record or electronic document and render these copies readily available, in both human readable and electronic form, for on-site inspection and off-site review, for the entirety of the required period of record retention;

(4) Provide that any electronic record or electronic document bearing an electronic signature contain the name of the signatory, the date and time of signature, and any information that explains the meaning of the affixed signature;

(5) Prevent an electronic signature that has been affixed to an electronic record or electronic document from being detached, copied, or otherwise compromised;

(6) Use secure, computer-generated, time-stamped audit trails that automatically record the date and time of operator entries and actions that create, modify, or delete electronic records or documents;

(7) Ensure that record changes do not obscure previously recorded information and that audit trail documentation is retained for a period at least as long as that required for the subject electronic records or electronic documents to be available for agency review;

(8) Ensure that electronic records and electronic documents are searchable and retrievable for reference and secondary uses, including inspections, audits, legal proceedings, third party disclosures, as required by applicable regulations, for the entirety of the required period of record retention;

(9) Archive electronic records and documents in an electronic form which preserves the context, meta data, and audit trail, and, if required, must ensure that:

(i) Complete records can be transferred to a new system;

(ii) Related meta data can be transferred to a new system;

(iii) Functionality necessary for use of records can be reproduced in new system; and

(b) Computer systems (including hardware and software), controls, and attendant documentation maintained under this Part must be readily available for, and subject to, agency inspection.

(c) Where electronic records bear electronic signatures that meet the requirements in paragraphs (a)(4) and (a)(5) of this section, EPA will consider the electronic signatures to be equivalent to full handwritten signatures, initials, and other general signings as required by federal or federally authorized State, tribal or local government environmental regulations, unless specifically excepted by regulation(s) effective on or after [date of promulgation of this regulation].

§ 3.200 [Reserved].

Subpart D -- Electronic Reporting and Record-keeping under EPA-Approved State Programs

§ 3.1000 How are authorized State, tribal or local environmental programs modified to allow electronic reporting?

(a) State, tribes, or local environmental programs that wish to receive electronic reports or documents in satisfaction of requirements under such programs must revise or modify the EPA-approved State, tribal, or local environmental program to ensure that it meets the requirements of this part. The State, tribe, or local government must use existing State, tribal, or local environmental program procedures in making these program revisions or modifications.

(b) In order for EPA to approve a program revision under paragraph (a) of this section the State, tribe, or local government must demonstrate that electronic reporting under this program will:

- (1) Use an acceptable electronic document receiving system as specified under § 3.2000;
- (2) Require that any electronic report or document must bear valid electronic signatures, as provided in § 3.10(c), (d) and (e), to the same extent that the paper submission for which it substitutes would bear handwritten signatures under the State, tribal or local environmental program.

§ 3.2000 What are the criteria for acceptable electronic document receiving systems?

An electronic document receiving system that is acceptable for purposes of receiving electronic reports or documents submitted under provisions of an authorized State, tribal or local environmental program must meet all of the following requirements:

- (a) **General system-security.** An acceptable electronic document receiving system must:
 - (1) Have strong and effective protections against unauthorized access to the system;
 - (2) Have strong and effective protections against the unauthorized use of any electronic signature on electronic documents submitted or received;
 - (3) Provide for the detection of unauthorized access or attempted access to the system and unauthorized use or attempted use of any electronic signature on electronic documents submitted or received;
 - (4) Prevent the modification of an electronic document once an electronic signature has been affixed;
 - (5) Ensure that the electronic documents and other files necessary to meet the requirements under paragraphs (f) and (g) of this section are protected from modification or deletion;
 - (6) Ensure that the system clock is accurate and protected from tampering or other compromise; and
 - (7) Have strong and effective protections against any other foreseeable corruption or compromise of the system.

(b) **Validity of data.** An acceptable electronic document receiving system must generate data sufficient to prove, in private litigation, civil enforcement proceedings, and criminal proceedings, that:

- (1) The electronic document was not altered in transmission or at any time after receipt; and

(2) The electronic document was submitted knowingly and not by accident; and
(3) In the case of documents requiring the signature of an individual, that the document was actually submitted by the authorized signature holder and not some other person.

(c) **Electronic signature method.** By virtue of its presence as a part of an electronic document submitted or received, an electronic signature must uniquely identify the particular individual who has used it to sign an electronic document or otherwise certify to the truth or accuracy of the document contents; therefore, an acceptable electronic document receiving system must only validate electronic signatures created with a method that:

- (1) Meets the registration requirements of paragraph (d) of this section;
- (2) Meets the signature/certification requirements of paragraph (e) of this section;
- (3) Prevents an electronic signature from being excised, modified, or copied for re-use without detection once it has been affixed to an electronic document by the authorized individual;
- (4) Provides protection against the use of a specific electronic signature by unauthorized individuals;
- (5) Ensures that it is impossible to modify an electronic document without detection once the electronic signature has been affixed.

(d) **Submitter registration process.** An acceptable electronic document receiving system must require that anyone who submits an electronic document to the system first register with the agency to which the document is to be submitted. The registration process must establish the identities of both the registrant, who is the prospective submitter, and any entity that the registrant is authorized to represent, and must establish that the registrant is authorized to submit the document in question for the entity being represented. In addition, where the documents to be received will require signature, the registration process must:

- (1) Establish the registrant's identity, and the registrant's relation to any entity for which the registrant will submit electronic documents, with evidence that can be verified by information sources that are independent of the registrant and the entity or entities in question and that would be sufficient to identify the registrant as the signature holder for purposes of supporting litigation consistent with paragraph (b) of this section;
- (2) Establish and document a unique correlation between the registrant and the code or device that will constitute or create the electronic signature of the registrant as a submitter;
- (3) Require that the registrant sign on paper, or in such other manner or medium as the Administrator in his or her discretion may determine as appropriate for a category of electronic reports, an electronic signature agreement specifying at a minimum that the registrant agrees to:
 - (i) Protect the electronic signature from unauthorized use, and follow any procedures specified by the agency for this purpose;
 - (ii) Be held as legally bound, obligated, or responsible by use of the assigned electronic signature as by hand-written signature;
 - (iii) Where the signature method is based on a secret code or key, maintain the confidentiality of each component of the electronic signature;
 - (iv) In any case, never to delegate the use of the electronic signature, or in any other way intentionally provide access to its use, to any other individual for any reason; and

(v) Report to the entity specified in the electronic signature agreement, within twenty-four hours of discovery, any evidence of the loss, theft, or other compromise of any component of an electronic signature;

(4) Provide for the automatic and immediate revocation of an electronic signature in the event of:

(i) Any actual or apparent violation of the electronic signature agreement;

(ii) Any evidence that the signature has been compromised, whether or not this is reported by the registrant to whom the signature was issued; or

(iii) Notification from an entity that the registrant is no longer authorized by the entity to submit electronic documents on its behalf;

(5) Require that the registrant periodically renew his or her electronic signature agreement, under terms that the Administrator determines provide adequate assurance that the criteria of paragraphs (a) and (b) of this section are met, taking into account both applicable contractual provisions and industry standards for renewal or re-issuance of signature codes or devices.

(e) **Electronic signature/certification scenario.** An acceptable electronic document receiving system that may be used to accept electronic documents bearing an electronic signature must:

(1) Not allow an electronic signature to be affixed to the electronic document until:

(i) The signatory has been provided an opportunity to review all of the data to be transmitted in an on-screen visual format that clearly associates the descriptions or labeling of the information being requested with the signatory's response and which format is identical or nearly identical to the visual format in which a corresponding paper document would be submitted; and

(ii) A certification statement that is identical to that which would be required for a paper submission of the document appears on-screen in an easily-read format immediately above a prompt to affix the certifying signature, together with a prominently displayed warning that by affixing the signature the signatory is agreeing that he or she is the authorized signature holder – referred to by name – has protected the security of the signature as required by the electronic signature agreement signed under paragraph (d)(3) of this section and is otherwise using the signature in compliance with that electronic signature agreement;

(2) Automatically respond to the receipt of an electronic document with transmission of an electronic acknowledgment that:

(i) States that the signed electronic document has been received, clearly identifies the electronic document received, indicates how the signatory may view and download a copy of the electronic document received from a read-only source, and states the date and time of receipt; and

(ii) Is sent to an address whose access is controlled by password, codes or other mechanisms that are different than the controls used to gain access to the system used to sign/certify and send the electronic document;

(3) Automatically creates an electronic "copy of record" of the submitted report that includes all the warnings, instructions and certification statements presented to the signatory during the signature/certification scenario as described under paragraph (e)(1) of this section, and that:

(i) Can be viewed by the signatory, in its entirety, on-screen in a human-readable format that clearly and accurately associates all of the information provided by the signatory with the descriptions

or labeling of the information that was requested;

(ii) Includes the date and time of receipt stated in the electronic acknowledgment required by paragraph (e)(2) of this section;

(iii) Has an agency electronic signature affixed that satisfies the requirements for electronic signature method under paragraphs (c)(3), (c)(4), and (c)(5) of this section;

(iv) Is archived by the system in compliance with requirements paragraph (g) of this section;

(v) Is made available to the submitter for viewing and down-loading; and

(vi) Is protected from unauthorized access.

(f) **Transaction Record.** An acceptable electronic document receiving system must create a transaction record for each received electronic document that includes:

(1) The precise routing of the electronic report from the submitter's computer to the electronic document receiving system;

(2) The precise date and time (based on the system clock) of:

(i) Initial receipt of the electronic document;

(ii) Sending of electronic acknowledgment under paragraph (e)(2) of this section;

(iii) Copy of record created under paragraph (e)(3) of this section;

(3) Copy of record as specified under paragraph (e)(3) of this section..

(g) **System archives.** An acceptable electronic document receiving system must:

(1) Maintain:

(i) The transaction records specified under paragraph (f) of this section, and

(ii) Records of the system on-screen interface displayed to a user under paragraph (e) of this section that can be correlated to the submission of any particular report (including instructions, prompts, warnings, data formats and labels, as well as the sequencing and functioning of these elements);

(2) Maintain the records specified under paragraph (g)(1) of this section for at least the same length of time as would be required for a paper document that corresponds to the received electronic document, and in a way that:

(i) Can be demonstrated to have preserved them in their entirety without alteration since the time of their creation; and

(ii) Provides access to these records in a timely manner that meets the needs of their authorized users.

§ 3.3000 How are authorized State, tribal or local environmental programs modified to allow electronic record-keeping?

(a) State, tribes, or local environmental programs that wish to allow the maintenance of electronic records or documents in satisfaction of requirements under such programs must revise or modify the EPA-approved State, tribal, or local environmental program to ensure that it meets the requirements of this part. The State, tribe, or local government must use existing State, tribal, or local environmental program procedures in making these program revisions or modifications.

(b) In order for EPA to approve a program revision under paragraph (a) of this section the State, tribe, or local government must demonstrate that records maintained electronically under this program will satisfy the requirements under §3.100 of this part.

§ 3.4000 [Reserved].

PART 51 – REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

1. The authority citation for part 51 continues to read as follows:

Authority: 23 U.S.C. 101; 42 U.S.C. 7401-7671q.

2. Section 51.286 is added to Subpart O of this part to read as follows:

§ 51.286 Electronic reporting.

States that wish to receive electronic documents or allow electronic record-keeping must revise the State Implementation Plan to satisfy the requirements of 40 CFR Part 3 – (Electronic reporting).

PART 60 – STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

1. The authority citation for part 60 continues to read as follows:

Authority: 42 U.S.C. 7401-7601.

2. Section 60.7 is amended by revising introductory text in paragraph (a) to read as follows:

§ 60.7 Notification and record-keeping.

(a) Any owner or operator subject to the provisions of this part shall furnish the Administrator written notification or, if acceptable to both the Administrator and the owner or operator of a source, electronic notification consistent with the requirements of 40 CFR Part 3 – (Electronic reporting), as follows:

* * * * *

PART 63 – NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

2. Section 63.6 is amended by adding a new paragraph (k) to read as follows:

§ 63.6 Compliance with standards and maintenance requirements.

* * * * *

(k) Electronic documents and record-keeping. Submission of electronic documents and retention of electronic records shall comply with the requirements of 40 CFR Part 3 – (Electronic reporting).

PART 70 – STATE OPERATING PERMIT PROGRAMS

1. The authority citation for part 70 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq.*

2. Section 70.1 is amended by adding a new paragraph (f) to read as follows:

§ 70.1 Program overview.

* * *

(f) States that choose to receive electronic documents or allow electronic record-keeping must satisfy the requirements of 40 CFR Part 3 – (Electronic reporting) in their program.

PART 123 – STATE PROGRAM REQUIREMENTS

1. The authority citation for part 123 continues to read as follows:

Authority: Clean Water Act, 33 U.S.C. 1251 *et seq.*

2. Section 123.25 is amended by revising paragraphs (a)(44) and (a)(45), and adding a new paragraph (a)(46) to read as follows:

§ 123.25 Requirements for permitting.

(a) * * *

(44) Section 122.35 (As an operator of a regulated small MS4, may I share the responsibility to implement the minimum control measures with other entities?);

(45) Section 122.36 (As an operator of a regulated small MS4, what happens if I don't comply with the application or permit requirements in §§ 122.33 through 122.35?); and

(46) For States that wish to receive electronic documents or allow electronic record-keeping,

40 CFR Part 3 – (Electronic reporting).

* * * * *

PART 142 – NATIONAL PRIMARY DRINKING WATER REGULATIONS IMPLEMENTATION

1. The authority citation for part 142 continues to read as follows:

Authority: 42 U.S.C. 300f, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-4, 300j-9, and 300j-11.

2. Section 142.10 is amended by adding paragraph (h) to read as follows:

§ 142.10 Requirements for a determination of primary enforcement responsibility.

* * * * *

(h) Has adopted regulations consistent with 40 CFR Part 3 – (Electronic reporting) if the State receives electronic documents or allows electronic record-keeping.

PART 145 – REQUIREMENTS FOR STATE PROGRAMS

1. The authority citation for part 145 continues to read as follows:

Authority: 42 U.S.C. 300f *et seq.*

2. Section 145.11 is amended by revising paragraphs (a)(30), (a)(31), (a)(32), and adding paragraph (a)(33) to read as follows:

§ 145.11 Requirements for permitting.

(a) * * *

(30) Section 124.12(a) – (Public hearings);

(31) Section 124.17 (a) and (c) – (Response to comments);

(32) Section 144.88 – (What are the additional requirements?); and

(33) For States that wish to receive electronic documents or allow electronic record-keeping, 40 CFR Part 3 – (Electronic reporting).

* * * * *

PART 162 – STATE REGISTRATION OF PESTICIDE PRODUCTS

1. The authority citation for part 162 continues to read as follows:

Authority: 7 U.S.C. 136v, 136w.

2. Section 162.153 is amended by adding a new subparagraph (a)(6) to read as follows:

(a) * * *

(6) *Electronic reporting and Record-keeping under State Registration of Pesticide Products.* States that choose to receive electronic documents or allow electronic records under the regulations pertaining to State registration of pesticides to meet special local needs, must ensure that the requirements of 40 CFR Part 3 – (Electronic reporting) are satisfied by their State registration program.

* * * * *

PART 233 – 404 STATE PROGRAM REGULATIONS

1. The authority citation for part 233 continues to read as follows:

Authority: 33 U.S.C. 1251 *et seq.*

2. A new § 233.39 is added to Subpart D of this part to read as follows:

§ 233.39 Electronic Reporting and Record-keeping.

States that choose to receive electronic documents or allow electronic record-keeping must include the requirements of 40 CFR Part 3 – (Electronic reporting) in their State program.

PART 257 – CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES

1. The authority citation for part 257 continues to read as follows:

Authority: 42 U.S.C. 6907(a)(3), 6912(a)(1), 6944(a) and 6949(c), 33 U.S.C. 1345(d) and (e).

2. Section 257.30 is amended by adding a new paragraph (d) to read as follows:

§ 257.30 Record-keeping requirements.

* * * * *

(d) The Director of an approved State program may receive electronic documents or allow electronic record-keeping only if the State program includes the requirements of 40 CFR Part 3 – (Electronic reporting).

PART 258 – CRITERIA FOR MUNICIPAL SOLID WASTE LANDFILLS

1. The authority citation for part 258 continues to read as follows:

Authority: 33 U.S.C. 1345(d) and (e); 42 U.S.C. 6902(a), 6907, 6912(a), 6944, 6945(c) and 6949a(c).

2. Section 258.29 is amended by adding a new paragraph (d) to read as follows:

§ 258.29 Record-keeping requirements.

* * * * *

(d) The Director of an approved State program may receive electronic documents or allow electronic record-keeping only if the State program includes the requirements of 40 CFR Part 3 – (Electronic reporting).

PART 271 – REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

1. The authority citation for part 271 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912 and 6926.

2. Section 271.10 is amended by revising paragraph (b) to read as follows:

§ 271.10 Requirements for generators of hazardous waste.

* * * * *

(b) The State shall have authority to require and shall require all generators to comply with reporting and record-keeping requirements equivalent to those under 40 CFR 262.40 and 262.41. States must require that generators keep these records at least 3 years. States that choose to receive electronic documents or allow electronic record-keeping must include the requirements of 40 CFR Part 3 – (Electronic reporting) in their Program (except that States that choose to receive electronic

manifests and/or permit the use of electronic manifests must comply with paragraph (f) of this section).

* * * * *

2. Section 271.12 is amended by revising paragraph (h) to read as follows:

§ 271.12 Requirements for hazardous waste management facilities.

* * * * *

(h) Inspections, monitoring, record-keeping, and reporting. States that choose to receive electronic documents or allow electronic record-keeping must include the requirements of 40 CFR Part 3 – (Electronic reporting) in their Program (except that States that choose to receive electronic manifests and/or permit the use of electronic manifests must comply with paragraph (i) of this section);

* * * * *

PART 281 – APPROVAL OF STATE UNDERGROUND STORAGE TANK PROGRAMS

1. The authority citation for part 281 continues to read as follows:

Authority: 42 U.S.C. 6912, 6991 (c), (d), (e), (g).

2. Section 281.40 is amended by revising paragraph (d) to read as follows:

§ 281.40 Requirements for compliance monitoring program and authority.

* * * * *

(d) State programs must have procedures for receipt, evaluation, retention and investigation of records and reports required of owners or operators and must provide for enforcement of failure to submit these records and reports. States that choose to receive electronic documents or allow electronic record-keeping must include the requirements of 40 CFR Part 3 – (Electronic reporting) in their State program.

* * * * *

PART 403 – GENERAL PRETREATMENT REGULATIONS FOR EXISTING AND NEW SOURCES OF POLLUTION

1. The authority citation for part 403 continues to read as follows:

Authority: 33 U.S.C. 1251 *et seq.*

2. Section 403.8 is amended by adding a new paragraph (g) to read as follows:

§ 403.8 Pretreatment Program Requirements: Development and Implementation by POTW.

* * * * *

(g) A POTW pretreatment program may receive electronic documents or allow electronic record-keeping only if the POTW pretreatment program includes the requirements of 40 CFR Part 3 – (Electronic reporting).

2. Section 403.12 is amended by adding a new paragraph (q) to read as follows:

§ 403.12 Reporting requirements for POTW's and industrial users.

* * * * *

(q) The Control Authority may receive electronic documents or allow electronic record-keeping only in compliance with the requirements of 40 CFR Part 3 – (Electronic reporting).

PART 501 – STATE SLUDGE MANAGEMENT PROGRAM REGULATIONS

1. The authority citation for part 501 continues to read as follows:

Authority: 33 U.S.C. 1251 *et seq.*

2. Section 501.15 is amended by adding a new paragraph (a)(4) to read as follows:

§ 501.15 Requirements for permitting.

(a) * * *

(4) Information requirements: All treatment works treating domestic sewage shall submit to the Director within the time frames established in paragraph (d)(1)(ii) of this section the information listed in (i) - (xii) of this paragraph. The Director of an approved State program may receive electronic documents or allow electronic record-keeping only if the State program includes the requirements of 40 CFR Part 3 – (Electronic reporting).

* * * * *

PART 745 – LEAD-BASED PAINT POISONING PREVENTION IN CERTAIN RESIDENTIAL STRUCTURES

1. The authority citation for part 745 continues to read as follows:

Authority: 15 U.S.C. 2605, 2607, 2681-2692 and 42 U.S.C. 4852d.

2. Section 745.327 is amended by adding a new paragraph (f) to read as follows:

§ 745.327 State or Indian Tribal lead-based paint compliance and enforcement programs.

* * * * *

(f) *Electronic reporting and Record-keeping under State or Indian Tribal programs.*
States and Tribes that choose to receive electronic documents or allow electronic records under the authorized State or Indian Tribal lead-based paint program, must ensure that the requirements of 40 CFR Part 3 – (Electronic reporting) are satisfied in their lead-based paint program.

PART 763 – ASBESTOS

1. The authority citation for part 763 continues to read as follows:

Authority: 15 U.S.C. 2605, 2607(c), 2643, and 2646.

2. Section 763.98 is amended by revising paragraphs (a)(1), (b)(3), and (d)(3) to read as follows:

§ 763.98 Waiver; delegation to State.

(a) *General.* (1) Upon request from a State Governor and after notice and comment and an opportunity for a public hearing in accordance with paragraphs (b) and (c) of this section, EPA may waive some or all of the requirements of this subpart E if the State has established and is implementing or intends to implement a program of asbestos inspection and management that contains requirements that are at least as stringent as the requirements of this subpart. In addition, if the State chooses to receive electronic documents or allow electronic record-keeping, the State program must include, at a minimum, the requirements of 40 CFR Part 3 – (Electronic reporting).

* * * * *

(b) * * *

(3) Detailed reasons, supporting papers, and the rationale for concluding that the State's asbestos inspection and management program provisions for which the request is made are at least as stringent as the requirements of Subpart E of this part, and that, if the State chooses to receive electronic documents or allow electronic Record-keeping, the State program includes, at a minimum, the requirements of 40 CFR Part 3 – (Electronic reporting).

* * * * *

(d) * * *

(3) The State has an enforcement mechanism to allow it to implement the program described in the waiver request and any electronic reporting and record-keeping requirements are at least as stringent as 40 CFR Part 3 – (Electronic reporting).

* * * * *

3. Paragraph I of Appendix C to Subpart E of this part is amended to add a new subparagraph (I) to read as follows:

* * * * *

I. Electronic Reporting and Recording-keeping.

States that choose to receive electronic documents or allow electronic record-keeping must include, at a minimum, the requirements of 40 CFR Part 3 – (Electronic reporting) in their programs.